

Station # 12

1. EDT 136130

11. Receiver Remarks:

15. DATA TRANSMITTED

[illegible]

16. KEY

Impact Level (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
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	2. Release	5. Post-Review	2. Approved w/comment	5. Reviewed w/comment
	3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment	6. Receipt acknowledged

(G)	(H)	17.	SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)	(G)	(H)
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1	1	Cog. Eng. C. A. Rowley	<i>Craig Rowley</i>	5/27/93	H6-02	EDMC (2)	<i>H6-02</i>		H4-22	3	
1	1	Cog. Mgr. R. C. Roos	<i>R. C. Roos</i>	5/27/93	H6-04	Information Release Admin. (2)			H4-17	3	
		QA				Central Files (2)			L8-04	3	
		Safety				ERC			H6-07	3	
		Env.									
1	1	G. S. Hunacek	<i>Harold S. Hunacek</i>	7/17/93	X0-41						
1	1	D. J. Watson	<i>For Harold S. Hunacek</i>	7/17/93	X0-41						

18. Craig Rowley 5-27-93
Signature of EDT Date
Originator

19. _____

Authorized Representative Date
for Receiving Organization

20. _____
Cognizant Manager Date 5/27/43

21. DOE APPROVAL (if required)
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2. Title 100-N Area Underground Storage Tank Closures		3. Number WHC-SD- EN-TI-136,	4. Rev No. 0
5. Key Words 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, 105-N-LFT 100-N-SS-27, 100-N-SS-28, soil excavation, sample collection		6. Author Name: C. A. Rowley <i>Craig Rowley</i> Signature Organization/Charge Code 81353/KN3A4	
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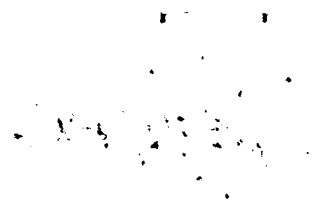
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1.0 INTRODUCTION

This report describes the removal/characterization actions concerning underground storage tanks (UST) at the 100-N Area (Figure 1). Included are 105-N-LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, 100-N-SS-27, and 100-N-SS-28. The text of this report gives a summary of remedial activities. In addition, correspondence relating to UST closures can be found in Appendix B. Appendix C contains copies of Unusual Occurrence Reports, and validated sampling data results comprise Appendix D.

2.0 HISTORY

Tanks 105-N-LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 100-N-SS-27 are located in the 100-N Area and were temporarily taken out of service in August 1990. Tank 100-N-SS-28 was removed on July 17, 1991. The single-shell tanks were constructed of carbon steel and varied in size from 11,356 to 56,781 L (3,000 to 15,000 gal). All tanks contained diesel fuel with the exception of Tank 100-N-SS-27, which contained unleaded gasoline. The tanks varied in age from 11 to 30 years at time of removal (Table 1).

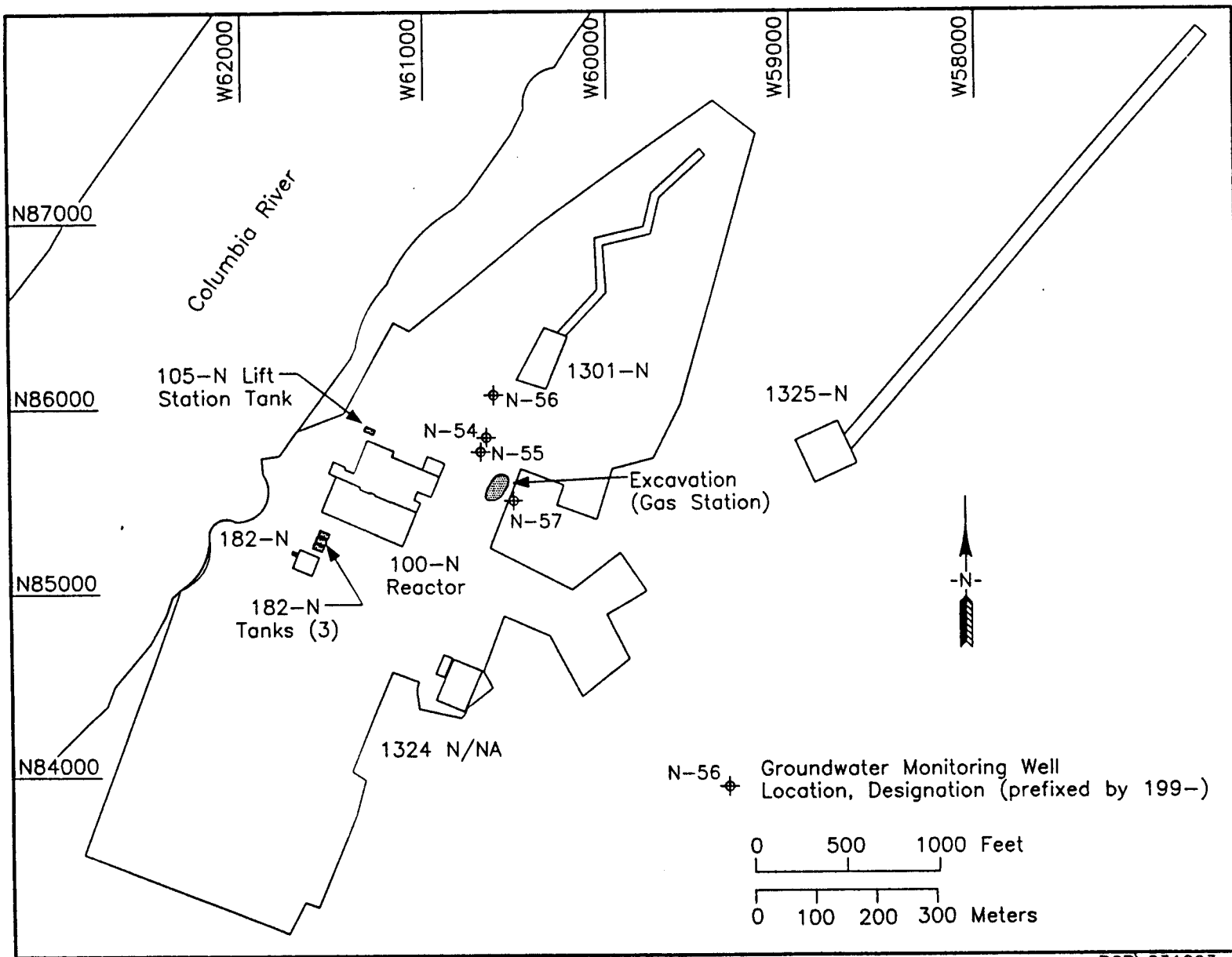
Advance notification for closure of UST 105-N-LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 100-N-SS-27 was given in accordance with Chapter 40 *Code of Federal Regulations* (CFR) 280/281. This 30-day advance notification was given to the State of Washington Department of Ecology (Ecology) on September 20, 1990 (Correspondence No. 9004172). Advance notification for Tank 100-N-SS-28 was given to Ecology on June 13, 1991 (Correspondence No. 9102476) in accordance with *Washington Administrative Code* (WAC) 173-360-385.

Notice of Permanent Closure for UST 105-N-LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 100-N-SS-27 was given to Ecology on July 16, 1991 (Correspondence No. 9103422), and Notice of Permanent Closure for UST 100-N-SS-28 was given on June 13, 1991 (Correspondence No. 9102476) (See Appendix B).

3.0 182-N-1-DT, 182-N-2-DT, AND 182-N-3-DT

Tanks 182-N-1-DT, 182-N-2-DT, and 182-N-3-DT were removed on November 30, 1990. It was noted in the field log book (WHC 1992a) that these tanks were in excellent condition with no significant rust or dents. A slight diesel odor, however, was noticed in the tank excavation area. Further investigation by the site safety officer (SSO) and the field team leader (FTL) revealed no levels of organic vapor above background detected with HNU meter (a tradename of HNU Systems, Inc.). It was suggested that the odor was probably coming from the valve caissons still in place. Samples were collected for each respective tank and sent offsite for laboratory analysis (Figure 2). The results of these samples were below detection levels.

Figure 1. Locations of Underground Storage Tanks at the 100-N Area.



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Table 1. Tank Identification.

Tank	Location	Contents	Size*	Date Removed
182-N-1-DT	100-N	Diesel Fuel	15,000	Nov. 30, 1990
182-N-2-DT	100-N	Diesel Fuel	15,000	Nov. 30, 1990
182-N-3-DT	100-N	Diesel Fuel	15,000	Nov. 30, 1990
105-N-LFT	100-N	Diesel Fuel	5,000	Dec. 7, 1990
100-N-SS-27	100-N	Unleaded gasoline	3,000	Dec. 18, 1990
100-N-SS-28	100-N	Diesel Fuel	2,000	July 17, 1990**

* Denotes volume in gallons.

** This tank last held unleaded gasoline for approximately 1 year prior to closure.

After the valve caissons had been removed, further site characterization continued on March 5, 1991. The soil was noted as looking dark and stained below the valves. Samples were collected from the discolored soils in all three caisson locations. Analysis of these samples revealed elevated levels of petroleum hydrocarbons. On September 14, 1991, further remediation of contaminated soil under valve caissons was attempted. It was determined that the contamination extended below and beyond several asbestos-wrapped pipes that prevented access with the backhoe. Work was delayed until the pipes could be removed for complete excavation.

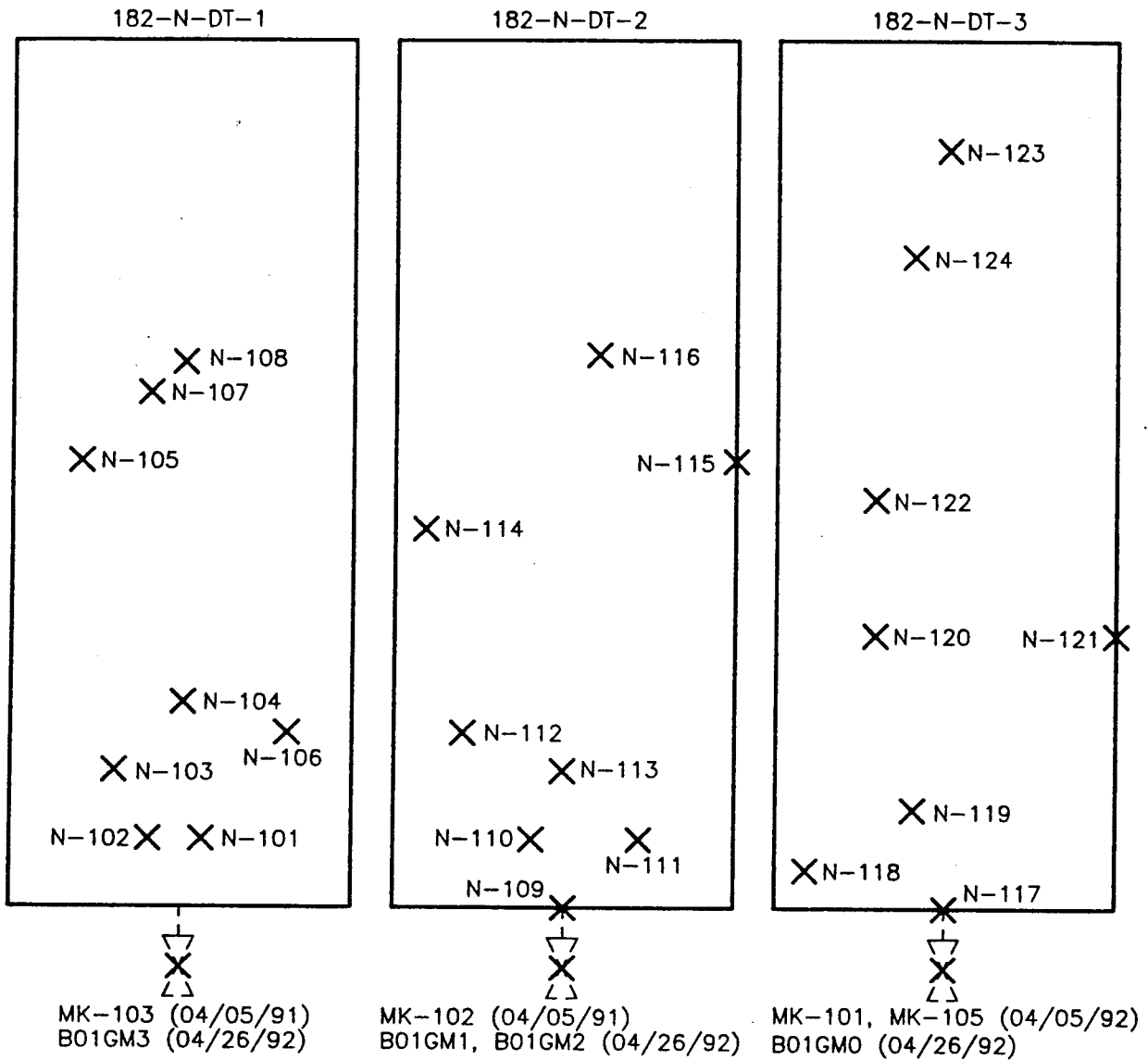
On March 26, 1992, the asbestos-wrapped pipes had been removed and sampling activities were continued. Soil was excavated to a depth of 51 to 63 cm (20 to 25 in.) in each caisson location, and samples were taken. The FTL noted in the field log book (WHC 1991) that all three sample points were screened with an OVM meter (a pending tradename of Olympus Corporation) and were less than detectable at the point of collection. Results from sample analysis were below action levels. For sample summary, refer to Table 2.

4.0 105-N-LFT

Tank 105-N-LFT was removed on December 7, 1990. The tank was surveyed and determined to be radiologically contaminated. The outer surface of the tank measured up to 20,000 counts per minute (cpm) on a Geiger-Mueller meter (GM). Underground piping and cables prevented proper sloping of the excavation to allow personnel to enter. Therefore, samples were collected from the bucket of the backhoe. Four locations were sampled within the excavation. Radiological contamination levels of the samples measured between 20,000 to 50,000 cpm. Radiological contamination of samples prevented laboratory analysis before holding times expired.

On March 30, 1992, resampling activities were implemented (Figure 3). The tank site was excavated to 3.9 m (13 ft) below ground surface. At this point, plastic markers used to identify the final depth of original sampling

Figure 2. Sampling Locations at 182-N-1-DT, 182-N-2-DT and 182-N-3-DT



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Table 2. Sample Analyses Results. (Sheet 1 of 2)

SAMPLE NUMBER	LOCATION	BENZENE	ETHYLBENZENE	TOLUENE	XYLENE	TPH GASOLINE	TPH DIESEL	TPH OTHER
N-101	182-N-1-DT	U	U	U	U	NA	NA	NA
N-102	182-N-1-DT	U	U	U	U	NA	NA	NA
N-103	182-N-1-DT	U	U	U	U	NA	NA	NA
N-104	182-N-1-DT	U	U	U	U	NA	NA	NA
N-105	182-N-1-DT	U	U	U	U	NA	NA	NA
N-106	182-N-1-DT	U	U	U	U	NA	NA	NA
N-107	182-N-1-DT	U	U	U	U	NA	NA	NA
N-108	182-N-1-DT	U	U	U	U	NA	NA	NA
N-109	182-N-2-DT	U	U	U	U	NA	NA	NA
N-110	182-N-2-DT	U	U	U	U	NA	NA	NA
N-111	182-N-2-DT	U	U	U	U	NA	NA	NA
N-112	182-N-2-DT	U	U	U	U	NA	NA	NA
N-113	182-N-2-DT	U	U	U	U	NA	NA	NA
N-114	182-N-2-DT	U	U	U	U	NA	NA	NA
N-115	182-N-2-DT	U	U	U	U	NA	NA	NA
N-116	182-N-2-DT	U	U	U	U	NA	NA	NA
N-117	182-N-3-DT	U	U	U	U	NA	NA	NA
N-118	182-N-3-DT	U	U	U	U	NA	NA	NA
N-119	182-N-3-DT	U	U	U	U	NA	NA	NA
N-120	182-N-3-DT	U	U	U	U	NA	NA	NA
N-121	182-N-3-DT	U	U	U	U	NA	NA	NA
N-122	182-N-3-DT	U	U	U	U	NA	NA	NA
N-123	182-N-3-DT	U	U	U	U	NA	NA	NA
N-124	182-N-3-DT	U	U	U	U	NA	NA	NA
N-125	182-N-3-DT	U	U	U	U	NA	NA	NA
N-126	182-N-3-DT	U	U	U	U	NA	NA	NA
N-127*	182-N-3-DT	U	U	U	U	NA	NA	NA
MK-103	(C) 182-N-1-DT	NA	NA	NA	NA	NA	NA	570 mg/kg
MK-102	(C) 182-N-2-DT	NA	NA	NA	NA	NA	NA	29,480 mg/kg
MK-101	(C) 182-N-3-DT	NA	NA	NA	NA	NA	NA	23,660 mg/kg
MK-105	(C) 182-N-3-DT	NA	NA	NA	NA	NA	NA	125,920 mg/kg
MK-104*	(C) 182-N-3-DT	NA	NA	NA	NA	NA	NA	< 10U mg/kg
B01GM3	(C) 182-N-1-DT	U	U	16 mg/kg	U	U	21.3 mg/kg	59.4 mg/kg
B01GM1	(C) 182-N-2-DT	U	U	21 ug/kg	U	U	63 mg/kg	149 mg/kg
B01GM2	(C) 182-N-2-DT	U	U	U	U	U	14 mg/kg	110 mg/kg
B01GM0	(C) 182-N-3-DT	U	U	U	U	U	U	18.2 mg/kg

* - DENOTES TRIP/EQUIPMENT BLANK

(C) - DENOTES CAISSON

NA - NOT ANALYZED

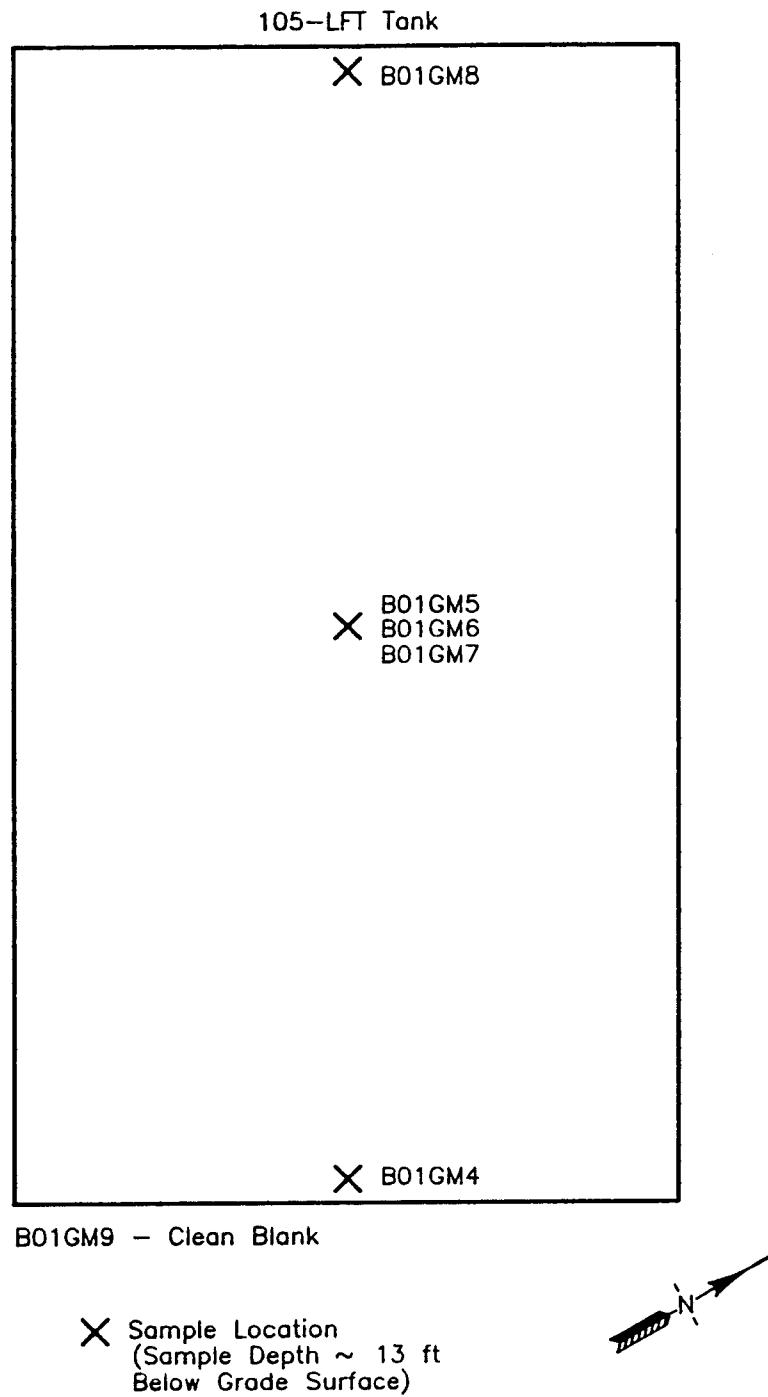
U - COUMPOUND WAS ANALYZED FOR BUT NOT DETECTED.

Table 2. Sample Analyses Results. (Sheet 2 of 2)

SAMPLE NUMBER	LOCATION	BENZENE	ETHYLBENZENE	TOLUENE	XYLENE	TPH GASOLINE	TPH DIESEL	TPH OTHER
B01GM4	105-N-LFT	U	U	22 ug/kg	U	U	U	7 mg/kg
B01GM5	105-N-LFT	U	U	17.2 ug/kg	U	U	U	24.2 mg/kg
B01GM6	105-N-LFT	U	U	14 ug/kg	U	U	U	63.6 mg/kg
B01GM7	105-N-LFT	U	U	U	U	NA	NA	33 mg/kg
B01GM8	105-N-LFT	U	U	13 ug/kg	U	U	U	15.3 mg/kg
B01GM9*	105-N-LFT	U	U	30 ug/kg	U	U	U	2.2 mg/kg
27-101*	100-N-SS-27	U	U	U	U	NA	NA	NA
27-102	100-N-SS-27	U	U	U	U	NA	NA	NA
27-103	100-N-SS-27	U	U	U	U	NA	NA	NA
27-104	100-N-SS-27	U	U	U	13 mg/kg	NA	NA	NA
27-105	100-N-SS-27	U	U	U	17 mg/kg	NA	NA	NA
27-106	100-N-SS-27	U	U	U	U	NA	NA	NA
B00ZN6	100-N-SS-28	U	U	U	U	NA	50 mg/kg	NA
B00ZN7	100-N-SS-28	U	U	U	1 mg/kg	NA	240 mg/kg	NA
B00ZN8*	100-N-SS-28	NA	NA	NA	NA	NA	NA	NA
B00ZN9*	100-N-SS-28	NA	NA	NA	NA	NA	NA	NA
B00ZP0	100-N-SS-28	U	U	U	U	NA	U	NA
B00ZP1	100-N-SS-28	2 mg/kg	10 mg/kg	350 mg/kg	130 mg/kg	NA	2800 mg/kg	NA
B00ZP2	100-N-SS-28	1.8 mg/kg	11 mg/kg	43 mg/kg	540 mg/kg	NA	200 mg/kg	NA
B00ZP3	100-N-SS-28	4.5 mg/kg	32 mg/kg	100 mg/kg	1,800 mg/kg	NA	11 ug/kg	NA
B00ZP4	100-N-SS-28	2.7 mg/kg	23 mg/kg	94 mg/kg	1,600 mg/kg	NA	10 ug/kg	NA
B00ZP5*	100-N-SS-28	U	U	11 ug/kg	U	NA	NA	NA
B00ZP6*	100-N-SS-28	NA	NA	NA	NA	NA	U	NA
B06D35*	100-N-SS-28	NA	NA	NA	NA	NA	U	U
B06D36	100-N-SS-28	U	U	4.2 mg/kg	U	U	435 mg/kg	(K) 2975 mg/kg
B06D37	100-N-SS-28	U	U	4.7 mg/kg	U	U	1000 mg/kg	(K) 3085 mg/kg
BO76C4	100-N-SS-28	U	U	U	U	NA	U	U
BO76C5	100-N-SS-28	U	U	U	U	NA	U	U
BO76C6	100-N-SS-28	U	U	U	U	NA	U	U
BO76C7*	100-N-SS-28	U	U	U	U	NA	U	U
BO76C8*	100-N-SS-28	U	U	U	U	NA	U	U
BO76C9*	100-N-SS-28	U	U	U	U	NA	U	U
BO76D0	100-N-SS-28	U	U	U	U	NA	U	U

* - DENOTES TRIP/EQUIPMENT BLANK
 (K) - DENOTES KEROSENE
 NA - NOT ANALYZED
 U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED.

Figure 3. Sampling Locations at 105-N-LFT Tank.



RCR\031293-B

excavation were located. Samples were again taken from the bucket of the backhoe. No indication of tank leakage or petroleum contamination were found by the FTL at the time of tank removal. Analytical results from samples were below action levels (See Table 2).

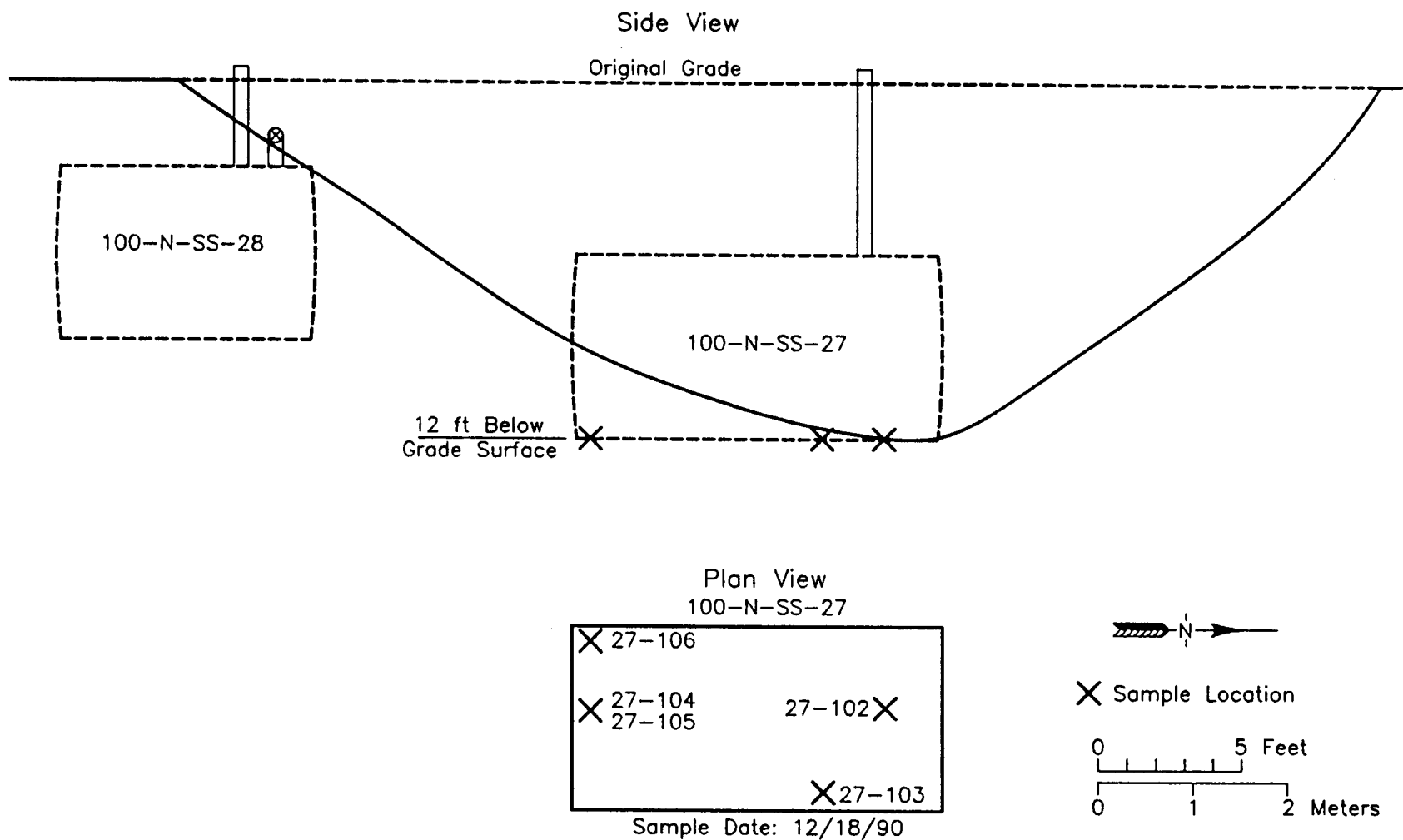
5.0 100-N-SS-27 AND 100-N-SS-28

Tank 100-N-SS-27 was taken out of service on June 22, 1990 because of a failed tightness test conducted the day before. Twenty-four-hour notification was made to the Department of Energy (DOE) Richland Operations Office (RL) and Ecology per 40 CFR 280.61, and an Event Fact Sheet (#D&D/100-10-90) was prepared as well. Tank excavation was initiated on December 13, 1990, in accordance with 40 CFR 280.71. Immediately following tank removal on December 18, 1990, soil sampling was implemented. Field screening procedures consisted of collecting approximately 1/2 cup of soil, placing the soil in a plastic bag, and sealing by twisting the top, including as much air as possible. The plastic bag was then shaken for approximately 10 seconds and the OVM probe was inserted in the bag for a reading. This procedure will be referred to as the OVM bag technique. Field screening using the OVM bag technique revealed organic vapor concentrations greater than 200 ppm in the south end of the tank impression. Additional field screening between 100-N-SS-27 and the sister tank (100-N-SS-28), which were about 2.7 m (9 ft) apart, showed vapor concentrations up to 350 ppm. Tank 100-N-SS-27 was noted to be in very good condition with no observable holes; however, the discovery of petroleum product in the excavation initiated an Unusual Occurrence Report (RL-WHC-WHC600EM-1990-0337). It was believed at that time that the contamination was from occasional overfilling of the tanks and a reported release of 337 L (89 gal) of gasoline on January 18, 1988 (Unusual Occurrence WHC-00-88-004-R,D&EO-1). The gravel and porous backfill surrounding the tanks may have created a natural pathway for surface spills. Samples were collected for offsite laboratory analysis (Figure 4). Analytical results from soil sampling indicate that the contaminated soil from the tank excavation site is well above cleanup levels set by the WAC 173-340-745 codes. Therefore, continued cleanup action was determined to be necessary.

On January 11, 1990, excavation of contaminated soil resumed. An additional 0.6 m (2 ft) of soil was removed, making the total depth about 4.3 m (14 ft), before reaching the excavation limit of the backhoe. Field screening using the OVM bag technique revealed elevated levels of volatile organic vapors ranging from 200 ppm to 350 ppm. There was no indication that the lower limit of contamination had been reached. The contamination was believed to extend south under the neighboring tank, 100-N-SS-28. No samples were collected at this time for laboratory analysis. It was noted in the 45-day report (Correspondence No. 910299) dated January 31, 1992, that complete cleanup would require excavation/removal of Tank 100-N-SS-28. The report also stated that Tank 100-N-SS-28 would be removed within the next three years, at which time this entire project would be cleaned up or would be included in the 100-NM-1 Operable Unit remediation plan.

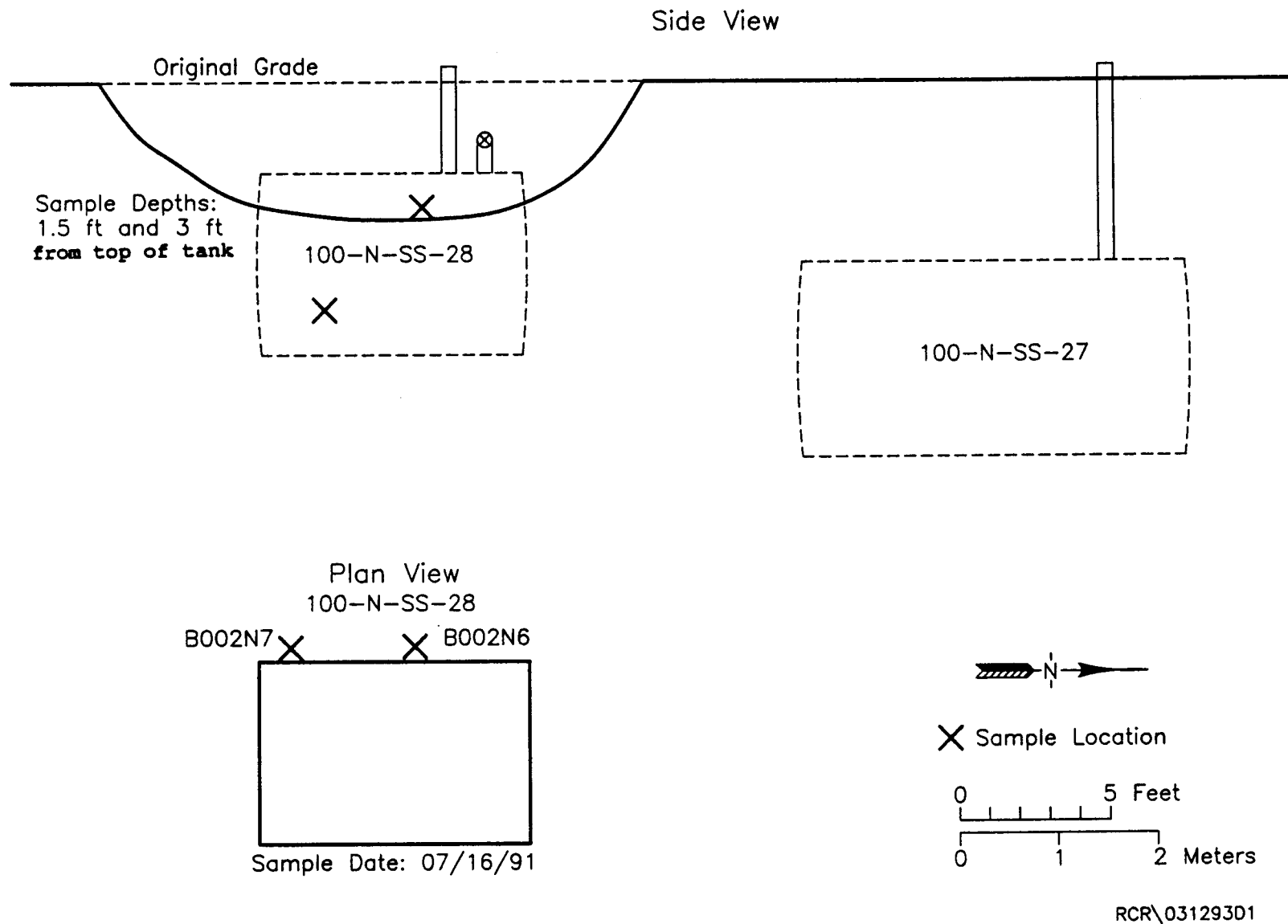
On July 16, 1991, removal and remediation activities of UST 100-N-SS-28 were implemented under WAC 173-360. Soil was excavated from around the tank and background samples were taken (Figure 5). The tank was removed the

Figure 4. Soil Excavation and Sample Collection at Tank 100-N-SS-27 (3.7 m [12 ft] Below Grade Surface).



RCR\031293-C

Figure 5. Soil Excavation and Sample Collection at Tank 100-N-SS-28 (0.46 m and 0.9 m [1.5 ft and 3 ft] Below Grade Surface).



following day. Visual inspection revealed the tank to be in very good condition with no holes or damage that would compromise the integrity of the tank. However, the bottom half of the tank was somewhat dirty, indicating that it was in contact with liquid. The excavated area also looked wet in the centerline of the pit. Additional investigation showed a loose pipe connection on the delivery line leading from the tank to the pump island. An eroded area of soil directly underneath the loose connection was observed. A clay layer of saturated soil 15 to 30 cm (6 to 12 in.) deep at the bottom of the excavation appeared saturated with petroleum product. Approximately 2.7 m^3 (3 yd^3) of this soil was removed and packaged into barrels for disposal. Samples were collected at this time (Figure 6). Another Unusual Occurrence Report was completed on July 17, 1991, (RL--WHC-NREACTOR-1991-1030). Analytical results verified the soil to be contaminated with petroleum product. Maximum levels of toluene were 100 mg/kg and xylene 1800 mg/kg (See Table 2 for sample analyses results and Appendix C for Unusual Occurrence Reports).

Excavation of 100-N-SS-28 tank site resumed on September 14, 1991, to remove the contaminated soil. Backhoe limitations prevented excavating deeper than 7.6 m (25 ft) below grade surface (BGS). Using the bag technique, OVM readings were approximately 312 ppm. There was no indication that the extent of the contamination plume had been determined. Work was abandoned at this time pending further evaluation. Excavation was continued on April 29, 1992. A bench for the backhoe was excavated 1.5 m (5 ft) BGS in an attempt to remove the remaining contaminated soil. At 10 m (33 ft) BGS, the OVM bag technique was utilized. Readings of 440 ppm were detected in the head space of the bag. Backhoe limitations were once again encountered at 10.0 m (36 ft) BGS, at which point OVM bag readings were 760 ppm. Samples were collected for offsite laboratory analysis (Figure 7). These sample results confirmed petroleum product in the soil. Maximum Levels were toluene, 4.7 mg/kg; diesel, 1000 mg/kg; and kerosene, 3085 mg/kg (See Table 2).

On September 9, 1992, borehole sampling was implemented. The borehole was positioned over the previous excavation area and soil borings were collected to assess remaining contamination in the soil. The borehole started at ground level, drilling through the backfill, and was to extend 1.5 m (5 ft) below the lowest point of contamination detected by field instruments, or a maximum of 16.8 m (55 ft) BGS. Sample collection began near contact between clean fill and native soil, which was approximately 11 m (36 ft) BGS. Samples were collected from the borehole cuttings at approximately 12.2, 14.3, and 16.8 m (~40, 47, and 55 ft) and sent offsite for analysis (Figure 8). Analytical results from these samples were less than detectable (See Table 2). As the borehole was abandoned, three vapor probes were installed at approximately 6.1, 10.1, and 12.5 m (~20, 33, and 41 ft) depths. Field screening analysis of vapors through these probes have been below detection levels.

During the most recent excavation of this tank site (April 29, 1992), petroleum product was present in the soil. The lack of contamination found during soil boring activity could be a result of volatilization and biodegradation of the petroleum contaminants. It is also possible that the borehole did not intersect the remaining contamination.

Groundwater in the vicinity of the excavation is at approximately 18.2 m (60 ft). Four groundwater wells are located near the old 100-N fuel station (Tanks 100-N-SS-27/100-N-SS-28). These wells are 199-N-54, 199-N-55, 199-N-

Figure 6. Soil Excavation and Sample Collection at Tank 100-N-SS-28 (3 m [10 ft] Below Grade Surface).

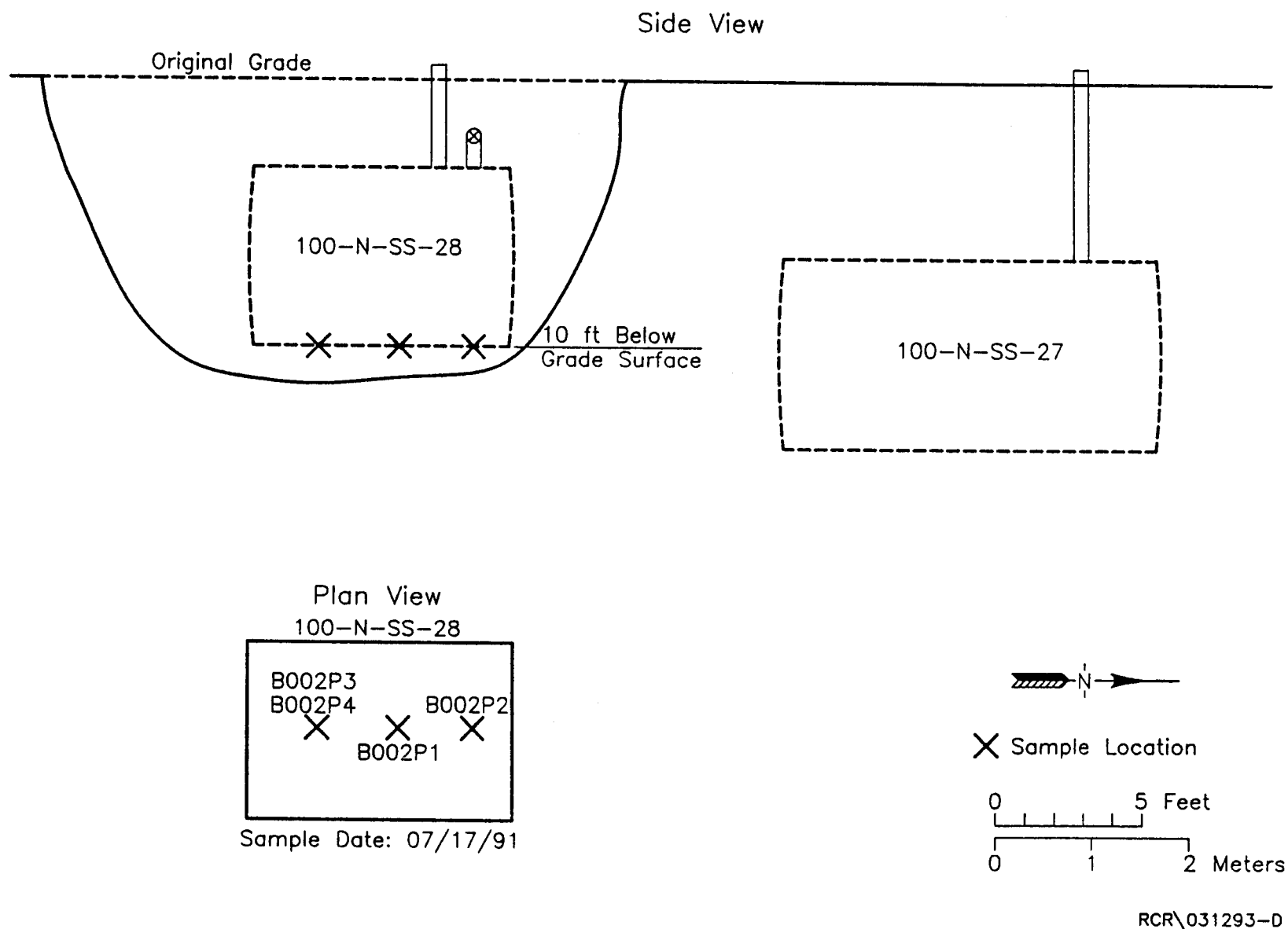
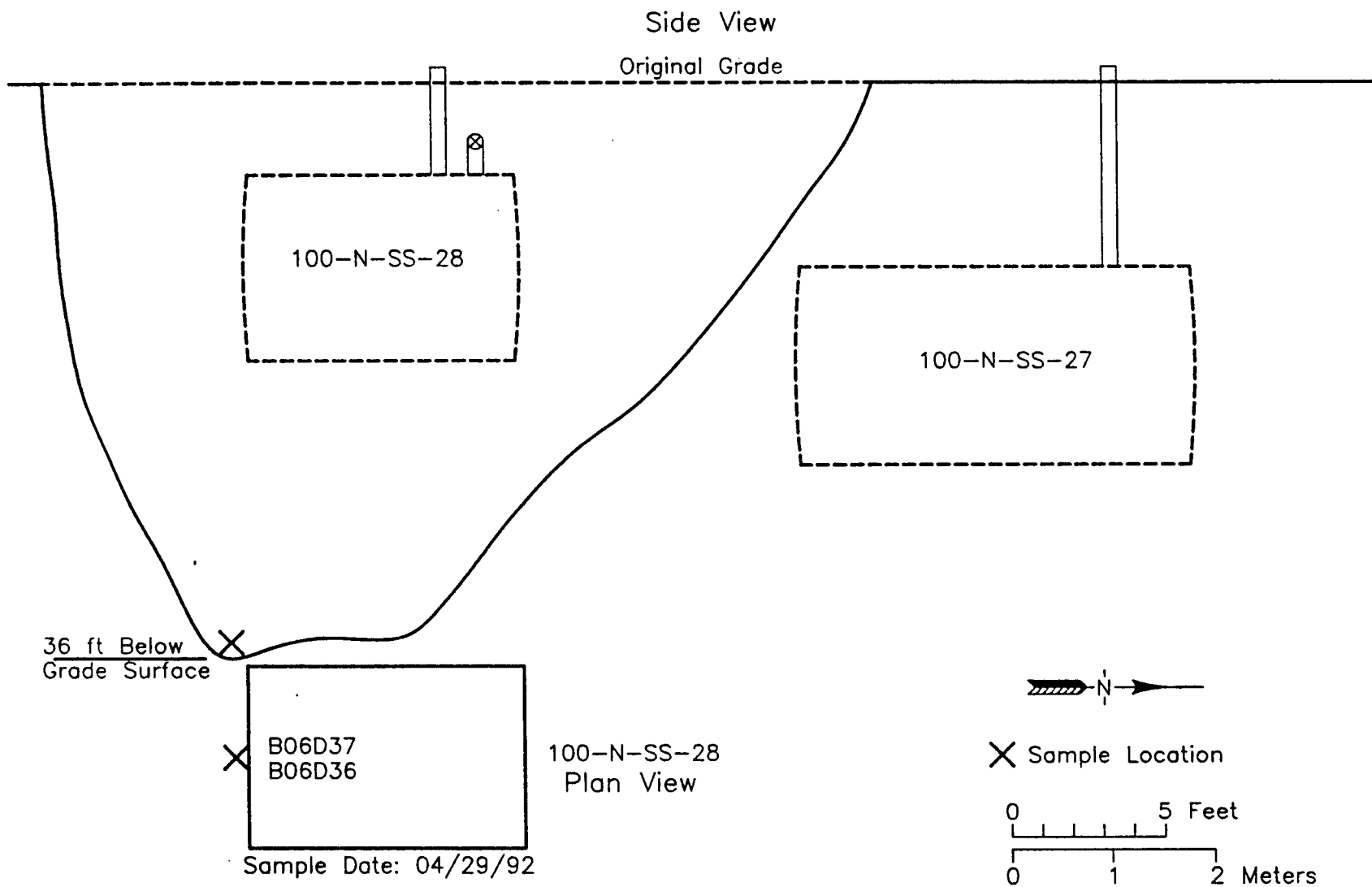
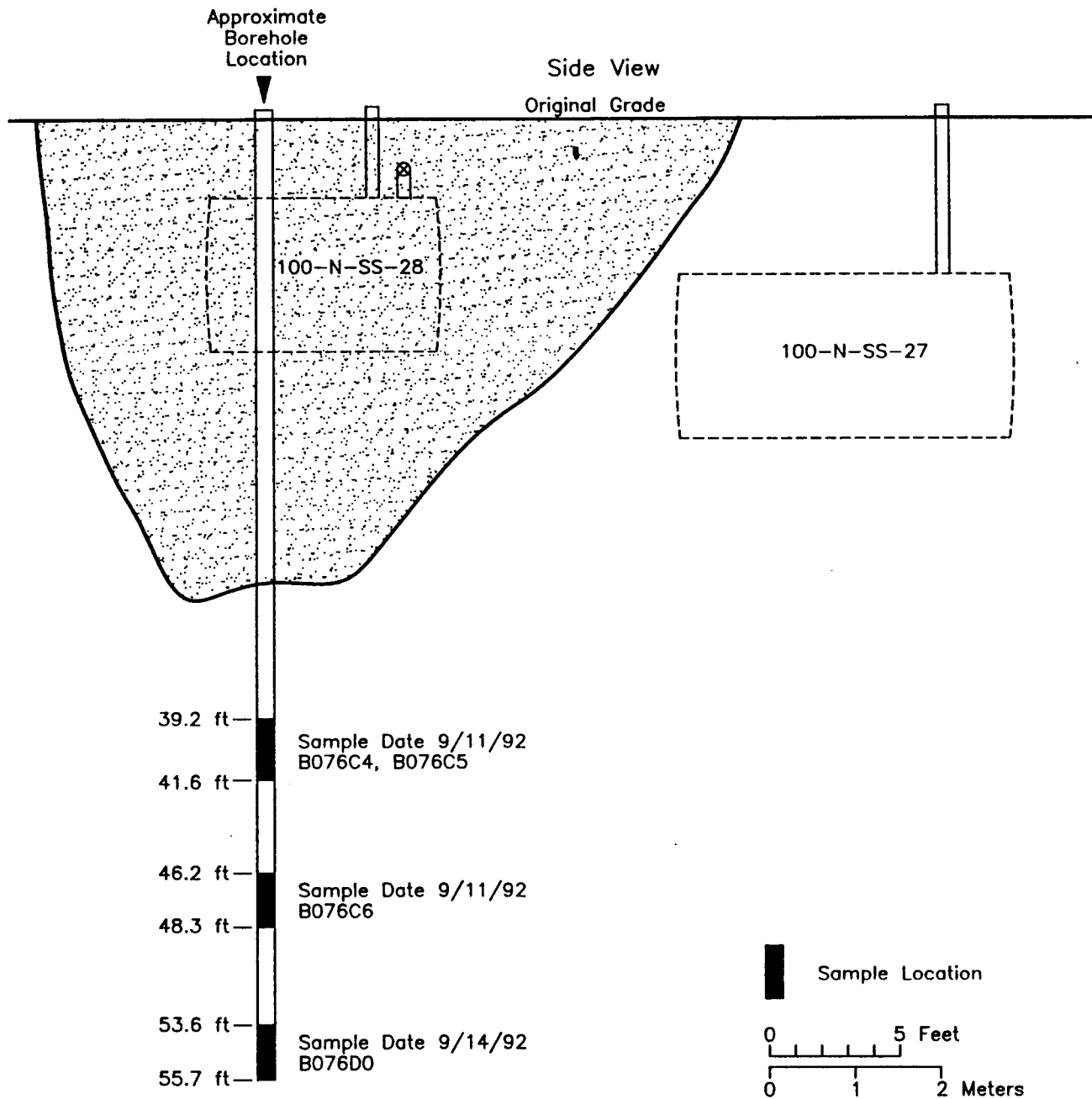


Figure 7. Soil Excavation and Sample Collection at Tank 100-N-SS-28 (10.9 cm [36 ft] Below Grade Surface).



RCR\031293-E

Figure 8. Soil Excavation and Sample Collection at Tank 100-N-SS-28 (~12.2, ~14.3, and ~16.7 m [~40, ~47, and ~55 ft]).



RCR\031293E1

56, and 199-N-57 (See Figure 1). They have been monitored for total petroleum hydrocarbons (TPH) and for benzene, toluene, M+P-xylene, and O-xylene (BTEX) from 1988 to present. Records back to 1988 indicate that no organic carbons (other than chloroform) have been detected in any of these wells.

6.0 CLOSURE RECOMMENDATIONS: TANK 100-N-SS-28

The WAC 173-340 "Model Toxic Control Act--Cleanup" and WAC 173-360 "Underground Storage Tank Regulations" are the established guidelines. These guidelines specify the means and degree for any corrective/cleanup action. If contaminated soil is found in contact with the groundwater or if soil contamination appears to extend below the lowest soil sampling depth, testing shall include the installation of groundwater monitoring wells to test for the presence of possible groundwater contamination. The minimum testing will be for BTEX and TPH constituents. Based upon these guidelines, recommendations of Site Remediation Management (SRM) are as follows:

Option 1: Excavate the area in question using an excavator capable of reaching depths of at least 12 m (40 ft).

(a) If contamination is not present after excavating to 40 ft BGS, SRM will consider the site to be clean from petroleum product.

(b) If contamination is determined to be present, excavation will continue until contaminated soils are removed, or Option 2 will be used.

Option 2: Install monitoring wells as required by the regulations. Because there are some wells already in close proximity, a compromise could possibly be reached with the State of Washington concerning the number of wells needed.

7.0 SUMMARY

This document was created in an effort to summarize the remediation/characterization activities concerning USTs at 100-N Area and to compile supporting documentation. The 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 105-N-LFT UST's are considered clean closed (Appendix A). The 100-N-SS-27 and 100-N-SS-28 UST site are pending a preferred alternative decision for clean closure. Tables have been created summarizing analytical results. Maps and figures of removal sites and sample locations are included. Copies of all official correspondence letters are contained in Appendix B. Unusual Occurrence Reports can be found in Appendix C, and validated sample documentation from the offsite laboratories is included in Appendix D.

8.0 REFERENCES

- 40 CFR 280, 1992, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)," *Code of Federal Regulations*, as amended.
- 40 CFR 281, 1992, "Approval of State Underground Storage Tank Programs," *Code of Federal Regulations*, as amended.
- WAC 173-340, 1990, "The Model Toxics Control Act Cleanup Regulations," *Code of Federal Regulations*, as amended.
- WAC 173-360, 1990, "Underground Storage Tank Regulations," *Washington Administrative Code*, as amended.
- WHC, 1991, *Field Log Book*, "Underground Storage Tank Investigation," EFL-1009, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1992a, *Field Log Book*, "Underground Storage Characterization and Remediation," WHC-N-349, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1992b, *Field Log Book*, "100-N Gas Station Leaking Underground Storage Tank Investigation," EFL-1044, Westinghouse Hanford Company, Richland, Washington.

WHC-SD-EN-TI-136, Rev. 0

APPENDIX A
MEMO DATED MAY 18, 1993

WHC-SD-EN-TI-136, Rev. 0

**Westinghouse
Hanford Company****Internal
Memo**

From: Site Remediation Management Section
Phone: 6-9218 H6-04
Date: May 18, 1993
Subject: UST 182-N AND 105-N

81353-93-027

To: G. S. Hunacek X0-41
cc: C. A. Rowley H6-04
D. J. Watson X0-41
RCR File/LB

Regarding Underground Storage Tanks 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, AND 105-N-LFT. I was present during removal of these UST's and performed the original site assessment. I have reviewed the sample data from the removal and sampling activities.

Tank 105-N-LFT was not contaminated with petroleum product and is considered clean.

Tanks 182-N-1,2,3-DT were not contaminated with petroleum products. There was some incidental contamination from the valves and piping which has been removed and is considered clean.



R. C. Roos
Manager

car

APPENDIX B
CORRESPONDENCE

CONTENTS

Advance Notification for Closure of Underground Storage Tanks at the Hanford Site (9004172)	B-1
Information and Notifications for Underground Storage Tanks at the Hanford Site (9103422)	B-5
Forty-Five Day Report for Underground Storage Tank 100-N-SS-27 (9100299)	B-9
Underground Storage Tank 100N-SS-28 Closure (9155942D)	B-17
Permanent Closure of Underground Storage Tank 100N-SS-28 (9102476)	B-27

WHC-SD-EN-TI-136, Rev 0

WHC-SD-EN-TI-136, Rev. 0
CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
R. D. Izatt	Timothy L. Nord	9004172

Subject: ADVANCE NOTIFICATION FOR CLOSURE OF UNDERGROUND STORAGE TANKS AT THE HANFORD SITE

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
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		R. J. Bliss	B3-04	X
		L. C. Brown	H4-51	X
		G. D. Carpenter	H4-15*	X
		R. A. Evanhoff	GR-10*	X
		K. A. Gano	X0-21*	X
		C. J. Geier	H4-57	X
		E. M. Greager	L6-60*	X
		R. P. Henckel	H4-55*	X
		K. L. Hoewing	B3-06	X
		M. C. Hughes	R1-15	X
		G. S. Hunacek	X0-41*	X
		K. N. Jordan	B2-15*	X
		R. E. Lerch (assignee)	B2-35	x
		M. A. Mihalic	R1-15*	X
		M. R. Morton	R2-77*	X
		R. J. Pyzel	X0-42*	X
		R. L. Shuck	S4-67*	X
		D. E. Simpson	B3-51	X
		D. R. Speer	R2-77*	X
		G. E. Van Sickle	R1-15	X
		B. L. Vedder	B2-19*	X
		D. J. Watson	X0-41*	X
		R. D. Wojtasek	B2-15	X

*ADDITIONAL DISTRIBUTION

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54-6000-117(EF) WEF008
Correspondence Distribution Coversheet



WHC-SD-EN-TI-136, Rev. 0

Department of Energy

Richland Operations Office

P.O. Box 550

Richland, Washington 99352

56
Incoming 9004172

90-ERB-117

SEP 20 1990

Mr. Timothy L. Nord
Hanford Project Manager
State of Washington
Department of Ecology
Mail Stop PV-11
Olympia, Washington 98504-8711

RECEIVED

007-1111

0.1.1.1.1.1

Dear Mr. Nord:

ADVANCE NOTIFICATION FOR CLOSURE OF UNDERGROUND STORAGE TANKS AT THE HANFORD SITE

Enclosed is a listing of the underground storage tanks (UST) that are being planned for removal (closure) at the Hanford Site. This notification is given in accordance with 40 CFR 280/281 to provide a 30-day advance notification prior to their removal.

Tanks 105-N LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 100-N-SS-27 are located at the 100-N Area (N Reactor) and were temporarily taken out of service in August 1990. They are single wall tanks constructed of carbon steel and vary in size from 3,000 to 15,000 gallons. They vary in age from 11 to 30 years. All the tanks contained diesel fuel except 100-N-SS-27 which contained unleaded gasoline. Due to the complexity of the site, the piping associated with these tanks (approximately 1,200 linear feet of 2-inch and 4-inch diameter) will be pressure tested, capped, and left in place to be remediated when the entire site is decommissioned/remediated. The actual removal of these tanks is currently scheduled to begin in mid-October.

Tanks 3000-1, 3000-2, 3000-3, and 3000-4 are located in the 3000 area and were temporarily taken out of service in February of 1990. They are also single wall tanks constructed of carbon steel and are each approximately 12,000 gallons in size. They are all approximately 40 years old and contained either gasoline (both leaded and unleaded) or diesel fuel. The removal of these tanks is scheduled to begin in December and be completed prior to February. Their actual removal dates may vary dependent upon winter weather conditions. Concurrent with the removal of these tanks, tank 325 will also be removed. This tank was discovered on site in 1989. Advance notification for closure of tank 325 was given in Mr. Leo Little's letter to Mr. Tom Lufkin of June 25, 1990, "Information and notifications for underground storage tanks at the Hanford Site." Tank 325 was previously used to store emergency diesel generator fuel. Although considered exempt from current regulations, it will be removed under guidance of 40 CFR 280/281. The tank is approximately 550 gallons in size and is located in the Hanford 300 Area.

Incoming 9004172

Mr. Timothy L. Nord

-2-

SEP 20 1990

Site assessments and sampling of the tanks will be performed as part of each tank closure. The Washington State Department of Ecology will be notified of any unusual circumstances in accordance with the regulations. Additional USTs are planned for removal in early 1991, but have not yet been scheduled. Additional notification will be made prior to their removal. When the closures are complete, revised notification forms will be forwarded to you.

If you have any questions or require additional information, please call Mr. P. M. Pak at (509) 376-4798.

Sincerely,



R. D. Izatt, Director
Environmental Restoration Division

ERD:PMP

Enclosure

cc w/encl:

W. H. Bodily, KEH

P. T. Day, EPA

R. E. Lerch, WHC

T. B. Veneziano, WHC

UNDERGROUND STORAGE TANKS
PLANNED FOR REMOVAL/CLOSURE DURING FY 1991

<u>Tank #</u>	<u>Location</u>	<u>Contents</u>	<u>Size (Gallons)</u>	<u>Date Removed From Service</u>	<u>Scheduled Removal</u>
105-N-LFT	100-N	Diesel Fuel	5,000	Aug. 1990	mid-October 1990
182-N-1-DT	100-N	Diesel Fuel	15,000	Aug. 1990	mid-October 1990
182-N-2-DT	100-N	Diesel Fuel	15,000	Aug. 1990	mid-October 1990
182-N-3-DT	100-N	Diesel Fuel	15,000	Aug. 1990	mid-October 1990
100-N-SS-27	100-N	Unleaded Gasoline	3,000	Aug. 1990	mid-October 1990
3000-1	3000 Area	Either Leaded or Unleaded Gasoline or Diesel Fuel	12,000	Feb. 1990	December* 1990
3000-2	3000 Area	" "	12,000	Feb. 1990	December* 1990
3000-3	3000 Area	" "	12,000	Feb. 1990	December* 1990
3000-4	3000 Area	" "	12,000	Feb. 1990	December* 1990
325	300 Area	Diesel Fuel	550	Unknown	December* 1990

*Actual removal dates may vary dependent upon winter weather conditions.

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
Leo E. Little RL	Mike C Osweiler Ecology	Incoming 9103422 XRF: 9154369D
Subject: INFORMATION AND NOTIFICATIONS FOR UNDERGROUND STORAGE TANKS AT THE HANFORD SITE		

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		G. D. Carpenter	B2-16	
		M. L. Douglas	R2-77	
		R. A. Evanoff	G4-10	
		K. A. Gano	X0-21	
		C. J. Geier	H4-57	
		R. P. Henckel	H4-55	
		K. L. Hoewing	B3-06	
		M. C. Hughes (2)	L4-88	
		G. S. Hunacek	X0-42	
		R. E. Lerch, Assignee	B2-35	
		M. A. Mihalic	L4-88	
		A. D. Poor	G4-11	
		R. L. Shuck	S4-67	
		E. H. Smith	B2-19	
		D. J. Watson	X0-41	
		R. D. Wojtasek	L4-92	
		EDMC	H4-51	



WHC-SD-EN-TI-136, Rev. 0

Department of Energy

Richland Operations Office
P.O. Box 550
Richland, Washington 99352
JUL 16 1991

7-19-91
Circle
Reference for
Completion of letter.
pm

91-ERB-129

Incoming: 9103422

Mr. Mike C. Osweiler
Nuclear and Mixed Waste,
Hanford Project
State of Washington
Department of Ecology
7601 W. Clearwater, Suite 102
Kennewick, Washington 99336

Dear Mr. Osweiler:

INFORMATION AND NOTIFICATIONS FOR UNDERGROUND STORAGE TANKS (USTs) AT THE HANFORD SITE

The following notifications and information on the Hanford USTs is attached to comply with the requirements of the State of Washington Department of Ecology's (Ecology) UST Regulations as described in WAC 173-360.

Washington State UST Notification Forms

The Notification forms provided in Attachment 1, have been updated to delete those tanks removed during Calendar Year (CY) 1990 and CY 1991 (to date), and to include 12 active emergency generator tanks that were previously interpreted as being exempt from the Federal UST Regulations. In addition, 21 abandoned USTs, all of which were taken out of service prior to December 22, 1988, have been included. The notification forms do not include the deferred heating oil tanks that do not require operating permits.

Notice of Permanent Closure of USTs 105-N-LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 100-N-SS-27

Since the tanks (105-N-LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 100-N-SS-27) were removed prior to the time of Ecology's UST Regulations' becoming effective, the old Notice of Permanent Closure of UST forms have been used and included in Attachment 2. The USTs removed after December 29, 1990, (3000-1/-2/-3/-4) will have the required forms submitted in accordance with 173-360-630 (12) after the site is closed or when final remediation is complete. (This was a release site.)

Closure of USTs at the Hanford Site

A total of nine (9) USTs have been permanently closed (removed) in CY 1990/1991 to date. Five USTs (105-N-LFT, 182-N-1-DT, 182-N-2-DT, 182-N-3-DT, and 100-N-SS-27) required by CFR 280/281 to be closed by December 22, 1990, were closed (removed) prior to that date. Those USTs (3000-1/-2/-3/-4) that were permanently taken out of service in February 1990, were removed in January 1991. Attachment 3 lists these USTs, their locations, contents, date removed from service, and their actual removal dates.

Mr. Mike C. Osweiler

-2-

91-ERB-129
JUL 19 1991

The advance notification for removal of these USTs (Letter 90-ERB-117, Mr. R. D. Izatt, DOE-RL, to Mr. Timothy L. Nord, Ecology, "Advance Notification for Closure of Underground Storage Tanks at the Hanford Site," dated September 20, 1990) stated that approximately 1,200 linear feet of 2-inch and 4-inch diameter piping associated with the USTs to be removed at the N Reactor site would be pressure tested, capped, and left in place until final remediation of the N Reactor site. Since pressure testing is not a requirement of 40 CFR 280.71, nor of WAC 173-360-385, the lines were capped, but not pressure tested. There was no history of any leakage associated with these tanks/piping, and therefore, no reason to suspect any leakage. However, a recent site inspection resulted in notification to Ecology of a site leak/spill associated with the piping system.

The advance notification also stated that a non-regulated, abandoned UST (tank 325) located in the 3000 Area would be removed along with tanks 3000-1/-2/-3/-4. Because of funding considerations, this tank was not removed at that time. Its removal will be rescheduled as funding becomes available and advance notification will be provided as required by the regulations.

The sites of USTs 100-N-SS-27 and 3000-1/-2/-3/-4 (one site) were discovered to be release sites after the tanks were removed. These sites were contaminated with gasoline and diesel fuel which, apparently, were the result of spills/tank overfills and, in the 3000 Area, the result of leaking pressurized piping associated with the USTs. Notifications were made to Ecology as required by the regulations, and the sites have been inspected by Ecology personnel. A remediation plan is being prepared for the 3000 Area site and will be made available to Ecology for review and comments prior to being finalized. (The initial draft is expected to be completed by June 25.) The sister tank to the 100-N-SS-27 tank (UST 100-N-22-28) is planned to be removed in mid-July to facilitate the characterization/remediation of this site. 30-day advance notification has been provided to Ecology for the removal effort.

All the USTs that have been removed as indicated above (with the exception of the 105-LFT tank) are currently stored at the 100-C Area on the Hanford Site and are scheduled to be disposed of at off site as scrap. A subcontract for this action is currently being prepared and is expected to be completed by August 1991. After its removal, the 105-LFT tank was discovered to be radioactively contaminated on its exterior surface and is undergoing decontamination at N Area prior to its being cut up and disposed of at the low level waste burial ground on the Hanford Site.

The site of USTs 3000-5/-6 (which were removed in September 1989) was also discovered to have been a release site (see the 45-day report dated November 1, 1989) and was resampled and then backfilled in January 1991. Based on the initial sampling results, no additional remediation was required. Confirmation soil samples were taken and the results of the analysis, along with the applicable forms as required by WAC 173-360, will be submitted to Ecology for concurrence on closing the site.

Mr. Mike C. Osweiler

-3-

91-ERB-129

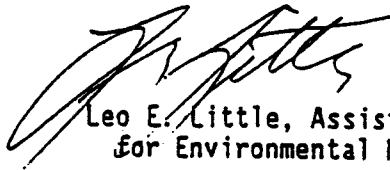
JUL 16 1991

Hanford UST Tightness Testing and Piping Pressure Testing for CY 1991

Attachment 4 provides the results of the tightness testing required by 40 CFR 280. Tightness testing was completed by December 22, 1990, for all the USTs as required by the regulations. The results were acceptable with the exceptions of UST 200E-HSF17 (helicopter refueling pad) and UST 100-N-SS-27. UST 200E-HSF17 was found to have a leak around each of its manhole covers during its initial testing in August 1990. In addition, testing on its suction piping was not completed due to an internal pump leak. The tank was temporarily taken out of service, repaired, and was successfully retested on December 28, 1990. UST 100-N-SS-27 was determined to have a leak near the top of the tank. This tank was removed from service in June and closed (removed) in December 1990.

If there are any questions concerning this matter, please contact Mr. Paul M. Pak of my staff at (509) 376-4798.

Sincerely,



Leo E. Little, Assistant Manager
for Environmental Management

ERD:PMP

Attachments:

1. Washington State UST Notification Form
2. Notice of Permanent Closure of USTs
3. Hanford USTs Closures During CY 1990/1991
4. Hanford UST Tank Tightness Testing
and Piping Pressure Testing for CY 1990

cc w/att:

P. T. Day, EPA
T. Lufkin, Ecology
T. L. Nord, Ecology
T. B. Veneziano, WHC

cc w/o att:

W. H. Bodily, KEH
T. D. Chikalla, PNL
R. E. Lerch, WHC
M. C. Hughes, WHC

56
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O J WATSON

CORRESPONDENCE

DISTRIBUTION

COVERSHEET

Author

Addressee

Correspondence No.

N. M. Highland
U.S. Dept. of Energy

Dave Nylander
Ecology

Incoming 9100299
XRF: 9150683D

Subject: FORTY-FIVE DAY REPORT FOR UNDERGROUND STORAGE TANK 100N-SS-27

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		M. R. Adams	H4-55	X
		R. J. Bliss	B3-04	X
		L. C. Brown	H4-51	X
		G. D. Carpenter	B2-16	X
		M. L. Douglas	R2-77	X
		R. A. Evanoff	G4-10	X
		K. A. Gano	X0-21	X
		C. J. Geier	H4-57	X
		R. P. Henckel	H4-55	X
		K. L. Hoewing	B3-06	X
		M. C. Hughes (2)	L4-88	X
		G. S. Hunacek	X0-42	X
		I. D. Jacques	L6-60	X
		K. R. Jordan	B3-51	X
		R. E. Lerch (assignee)	B2-35	X
		M. A. Mihalic	L4-88	X
		A. D. Poor	G4-11	X
		R. J. Pyzel	X0-42	X
		R. L. Shuck	S4-67	X
		E. H. Smith	B2-19	X
		D. R. Speer	R2-77	X
		G. E. Van Sickle	R2-81	X
		D. J. Watson	X0-41	X
		R. D. Wojtasek	L4-92	X
		EDMC	H4-51	



Department of Energy

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

JAN 31 1991

Incoming
9100299

Mr. Dave Nylander
State of Washington
Department of Ecology
7601 W. Clearwater, Suite 102
Kennewick, WA 99336

Dear Mr. Nylander:

FORTY-FIVE DAY REPORT FOR UNDERGROUND STORAGE TANK (UST) 100N-22-27

Attached are the Twenty and Forty Five Day Reports on UST 100N-SS-27, that was discovered to be leaking after its removal on December 18, 1990. This report is the required follow-up of the verbal notification given to the Washington State Department of Ecology by the U.S. Department of Energy Richland Operations Office (DOE-RL) on December 19, 1990. A Twenty/Forty Five Day report was previously submitted (July 1990) for this same UST when it was discovered to have a minor leak during tightness testing.

Should you have any questions or require additional information, please contact Mr. N. G. Thomas of my staff on (509) 376-9624 or Mr. M. C. Hughes of Westinghouse Hanford Company on (509) 373-3262.

Sincerely,

Nadine M. Highland, Director
Site Infrastructure Division

SID:NGT

Enclosure

cc w/encl:
P. T. Day, EPA
R. E. Lerch, WHC *B2-35*
R. F. Stanley, Ecology
T. L. Nord, Ecology
R. A. Holten, DOE-RL
G. M. Bell, DOE-RL
R. D. Izatt, DOE-RL

FORTY-FIVE DAY REPORT
FOR UNDERGROUND STORAGE TANK 100N-SS-27

INTRODUCTION

This report describes the site investigation and remediation plan for the 100N-SS-27 fuel tank removal, located in the 100 N Reactor Area on the Hanford site at the Fuel Station (Figure 1). The tank, approximately 23 years old, has a 3,000 gallon capacity and was last used to store unleaded gasoline. The tank was taken out of service on June 22, 1990, because of a failed tightness test conducted the previous day. Twenty-four hour notification was made to DOE-RL and Ecology per 40CFR280.61, and an Event Fact Sheet (#D&D/100-10-90) was prepared as well.

TANK EXCAVATION

Tank excavation and tank removal were completed on December 18, 1990. Approximately 25 feet of associated piping was removed from the ground along with the tank. An inspection of the tank did not reveal any holes or cracks and the overall condition of the tank was very good. The tank was taken to the 190-C storage pad and will be cleaned and sold as scrap.

Immediately following the lifting of the tank, soil sampling was conducted to test for the presence of contaminated soil. Samples were collected for laboratory analyses of volatile and semi-volatile compounds to assess potential petroleum hydrocarbon contamination. An organic vapor monitor (OVM; HNU model PL 101) was used for the field investigation. The field procedure consisted of collecting approximately 1/2 cup of soil, placing it in a plastic bag, and sealing by twisting the top while including as much air as possible. The plastic bag was then shaken for approximately 10 seconds and the OVM probe was inserted in the bag for a reading. Photographs were taken during and after tank excavation to document the condition of the tank and surrounding soil.

INITIAL FIELD INVESTIGATION

The field sampling in the north 8 feet of the excavation (see Figure 2) did not indicate a presence volatile organics. Samples taken at the south end of the tank impression had readings in excess of 200 ppm. Additional field samples were taken on the south end of the excavation between the 100N-SS-27 and -28 tank, approximately 9 feet apart, which showed vapor concentrations of up to 350 ppm. Field sampling along the piping trench did not reveal the presence of any volatile organics.

In addition to the field screening, additional samples were collected in the same approximate locations, for laboratory analyses (Figure 2). These were taken with new stainless steel spoons and deposited directly into clean QA I-Chem bottles. The samples were packed in ice and sent to the K-25 Laboratory in Oak Ridge Tennessee for analysis. Chain of custody records will be maintained.

INITIAL CLEAN UP

The initial site remediation plan was to excavate while taking field samples until clean soil was encountered. Because the tank was in good condition, the contamination was believed to be from a confirmed and reported 83- to 95-gallon spill that occurred on January 18, 1988, and from occasional overfills and spills that may have gone unreported over the tank's 20 plus years of service.

On January 11, 1990, another 2 feet of soil was removed from the south end of the excavation with every 5th bucket being sampled with the OVM bag technique. The last 4 buckets showed sequentially greater concentrations of volatile organic vapors, ranging from 200 ppm to 350 ppm. There was no indication that the lower limit of contamination had been reached. The contamination is believed to extend south, under the neighboring tank, 100N-SS-28 (Figure 3).

INTERIM PLAN

The 100-N-SS-28 tank will be removed within the next three years. Because complete clean up would require excavation back under this tank, it is planned to remediate the entire site at a later date. The cleanup may take place at the time of removal of the 100-N-SS-28 tank or as part of the 100-NM-1 Operable Unit. The 100-N-SS-28 was tightness tested on October 18, 1990 and was determined to be tight per 40CFR280.43(c). Furthermore, filling procedures have been implemented that prevent any tank overfills.

There are four ground water monitoring wells positioned down stream of the fuel station. These wells have been monitored since June 1989 for a limited constituent list. The majority of the organic constituents were below detectable limits. Any elevated quantities of aliphatic hydrocarbons (indicating diesel fuel) would have shown up in the volatile organic analysis. None were found in any of the groundwater samples collected from these wells.

In consideration of the above information, it is believed that the source of the existing contamination has been eliminated.

We are continuing to investigate the cause of the contaminated soil found under tank 100-N-SS-27. Other measures are being taken to determine the extent of the contaminated soil and whether cleanup should be deferred until 100-N-SS-28 tank is removed in three years.

WHC-SD-EN-TI-136, Rev. 0

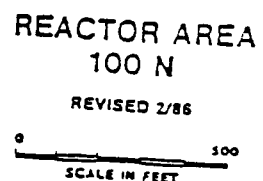
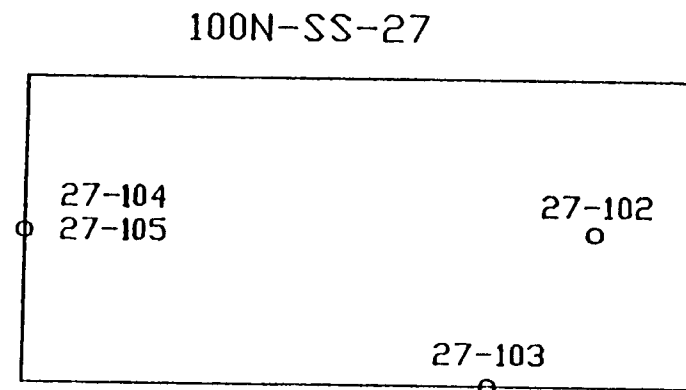
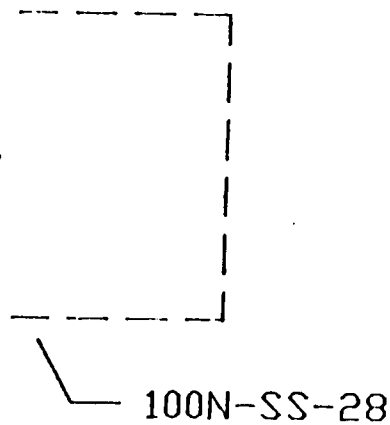


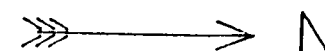
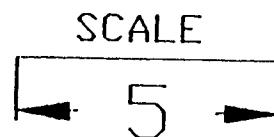
FIGURE 2

SAMPLE POINT LOCATIONS

B-14

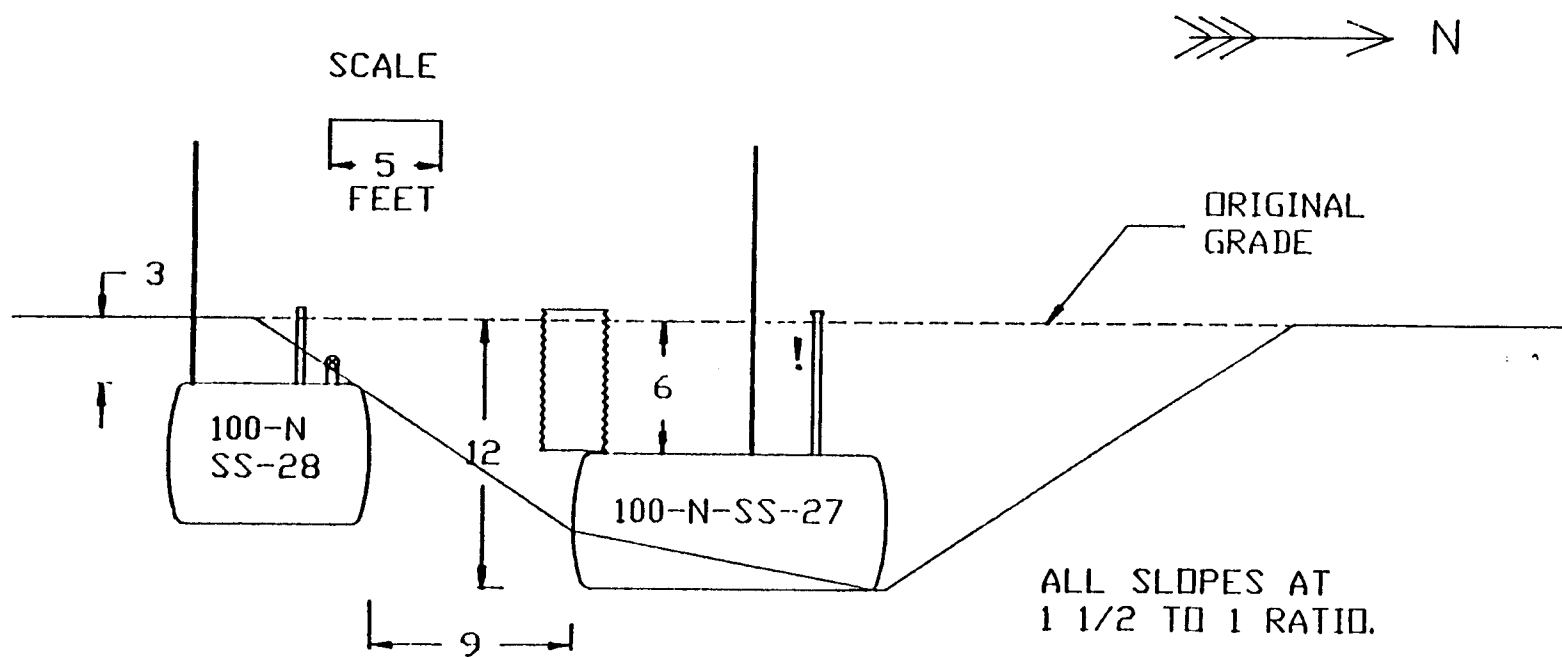


NOTE: SAMPLE 27-101 IS THE TRIP/EQUIPMENT
BLANK COLLECTED AT THE SAMPLING LAB.



MHC-SD-EN-TI-136, Rev. 0

FIGURE 3



CONTAMINATION FOUND UNDER SOUTH END OF 100N-SS-27
AND BETWEEN THE TWO TANKS.

TWENTY-DAY REPORT
FOR UNDERGROUND STORAGE TANK 100N-SS-27

This report describes the site investigation and intended remediation activities for the 100N-SS-27 underground storage tank. This 3000 gallon tank site is located at the 100 N Area Service Station on the Hanford Site and is approximately 23 years old. It was last used to store unleaded gasoline. The tank was taken out of service on June 22, 1990, because of a failed tightness test conducted the day before. The leak was determined to be in the top of the tank where the fill tube is attached. This portion of the tank does not normally contain product, but was used for the tightness test. This was previously reported to Ecology in July 1990 via a 20/45 Day Report.

Tank excavation and removal were initiated on December 13, 1990, per 40 CFR 280.71. Immediately following the tank removal on December 18, soil sampling was conducted to test for the presence of contaminated soil. Samples were collected for laboratory analyses of volatile and semi-volatile compounds to assess potential petroleum hydrocarbon contamination. An organic vapor monitor was used for the field investigation. The field procedure consisted of collecting approximately 1/2 cup of soil, placing it in a plastic bag, and sealing by twisting the top while including as much air as possible. The plastic bag was then shaken for approximately 10 seconds and the OVM probe was inserted in the bag for a reading.

The field sampling indicated organic vapor concentrations greater than 200 ppm were present in the south end of the tank impression. Additional samples taken on the south end between the 100N-SS-27 and -28 tank, approximately nine feet apart, showed vapor concentrations of up to 350 ppm.

The tank was in very good condition with no observable holes. It is believed that the contamination was from occasional overfilling of the tanks and from an 83 to 95 gallon spill that occurred on January 18, 1988, (and reported to Ecology). The gravel and porous backfill surrounding the tanks may have created a natural pathway for surface spills.

Current plans are to remove the contaminated soil from the tank impression, sample for organic vapors, and backfill once the excavation is determined to be clean. The contaminated soil will be taken to an area where it can be stored on plastic for proposed solid phase remediation at a later date. The tank has been taken to a storage pad and will be cleaned/flushed and disposed of as clean salvage.

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
M. A. Mihalic, 6-0967	E. A. Bracken, RL	9155942D

Subject: UNDERGROUND STORAGE TANK 100N-SS-28 CLOSURE

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		President's Office	B3-01	
		R. J. Bliss	B3-04	X
		G. D. Carpenter	B2-16	X
		M. L. Douglas	R2-77	X
		C. J. Geier	H4-57	X
		R. P. Henckel	H4-55	X
		K. L. Hoewing	B3-06	X
		M. C. Hughes (2)	L4-88	X
		G. S. Hunacek	X0-41	X
		R. E. Lerch	B2-35	X
		M. A. Mihalic	L4-88	X
		R. G. Shuck	S4-67	X
		E. H. Smith	B2-19	X
		D. J. Watson	X0-41	X
		R. D. Wojtasek	L4-92	X
		EDMC	H4-22	X

X RPH 8/13/91
 X ~~HH~~ 8/13/91
 X ~~AA~~ 8/13/91
 X mmm 8.13.91
 X mmm for 8.14.91*



Westinghouse
Hanford Company

WHC-SD-EN-TI-136, Rev. 0

56

P.O. Box 1970 Richland, WA 99352

August 14, 1991

91559420

RECEIVED
AUG 21
D. J. WATSON

Ms. E. A. Bracken, Director
Environmental Restoration Division
U.S. Department of Energy
Field Office, Richland
Richland, Washington 99352

Dear Ms. Bracken:

UNDERGROUND STORAGE TANK 100N-SS-28 CLOSURE

Attachment 1 to this letter is the completed Permanent Closure/Change-In-Service Checklist, and Attachment 2 (two copies) is the Site Check/Site Assessment Checklist for underground storage tank 100N-SS-28, which was permanently closed (removed) on July 17, 1991. These checklists are required to be submitted to Ecology in accordance with the requirements of Washington Administrative Code 173-360-630 (12).

The U.S. Department of Energy Field Office, Richland, is requested to submit these checklists to the Washington State Department of Ecology (Ecology) no later than August 19, 1991. Attachment 3 is a draft transmittal letter to Ecology.

If you have questions regarding this information, please call me on 376-7000, or Mr. M. C. Hughes at 376-0787.

Very truly yours,

R. D. Wojtasek, Manager
Environmental Restoration Program
Environmental Division

mag

Attachments 3

RL - J. K. Erickson
E. D. Goller
R. O. Puthoff (w/o attachments)
R. P. Saget

WHC-SD-EN-TI-136, Rev. 0

9155942D
ATTACHMENT 1
2 Pages



UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

The purpose of this form is to certify the proper investigation of an UST site for the presence of a release. These activities shall be conducted in accordance with Chapter 173.360 WAC. A description of the various situations requiring a site check or site assessment is provided in the guidance document for UST site checks and site assessments.

This Site Check/Site Assessment Checklist shall be completed and signed by a person registered with the Department of Ecology to perform site assessments.

Two copies of the results of the site check or site assessment should be included with this checklist according to the reporting requirements in the guidance document for UST site checks and site assessments.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

UST Owner/Operator: U.S. Department of Energy - Richland Operations

Owners Address: 825 Jadwin 550
Street P.O. Box
Richland WA 99352
City State ZIP Code

Telephone: (509) 376-7387

Site ID Number (on invoice or available from Ecology if tank is registered): 012763

Site/Business Name: U.S. Department of Energy - Richland Operations

Site Address: 825 Jadwin P.O. Box 550 Benton
Street P.O. Box County
Richland WA 99352
City State ZIP Code

2. SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Registered Person: Ronald M. Mitchell

Address: Westinghouse Hanford Company P. O. Box 1970
Street P.O. Box
Richland WA 99352
City State ZIP Code

Telephone: (509) 376-5122

B-20

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 100N-SS-28 2. Year installed: 1976
 3. Tank capacity in gallons: 2000 4. Date of last use: 12/90
 5. Last substance stored: Unleaded Gasoline 6. Date of closure/change-in-service: 7/17/91
 7. Type of closure: Closure with Tank Removal ☒ In-place Closure ☐ Change-in-Service ☐
 8. If in-place closure is used, the tank has been filled with the following substance: N/A
 9. If change-in-service, indicate new substance stored in tank: N/A
 10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes ☒ No ☐

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initiated by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?		<input checked="" type="checkbox"/>	
2. Has all product piping been capped or removed?		<input checked="" type="checkbox"/>	
3. Have all non-product lines been capped or removed?	<input checked="" type="checkbox"/>		
4. Have all liquid and accumulated sludges been removed from the tank?		<input checked="" type="checkbox"/>	
5. Has the tank been properly purged or inerted?	<input checked="" type="checkbox"/>		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?		<input checked="" type="checkbox"/>	
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.	<input checked="" type="checkbox"/>		
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?		<input checked="" type="checkbox"/>	
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations? <u>LABELED AND AWAITING FINAL DISPOSAL</u>		<input checked="" type="checkbox"/>	

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

August 12, 1991
Date

Daniel Riley
Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

8/15/91
Date

Date

8/13/91
Date

Date

Donald E. Leach
Signature of Licensed Service Provider (firm) Owner or Authorized Representative

Donald E. Leach
Signature of Tank Owner or Authorized Representative

9155942D
ATTACHMENT 2
2 Pages
(2 copies)



UNDERGROUND STORAGE TANK

Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a Licensed Decommissioning Supervisor. The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a Service Provider. If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: U.S. Department of Energy Field Office, Richland

Owners Address: 825 Jadwin 550
Street P.O. Box
Richland WA 99352
City State ZIP Code

Telephone: (509) 376-7387

Site ID Number (on invoice or available from Ecology if tank is registered): 012763

Site/Business Name: U.S. Department of Energy Field Office, Richland

Site Address: 825 Jadwin, P.O. Box 550 Benton
Street County
Richland WA 99352
City State ZIP Code

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: Westinghouse Hanford Company License Number: S001592

Address: 1970
Street P.O. Box
Richland WA 99352
City State ZIP Code

Telephone: (509) 376-7411

Licensed Supervisor: D. A. Riley Decommissioning License Number: W000778

B-23

3. TANK INFORMATION

WHC-SD-EN-TI-136, Rev. 0

1. Tank ID Number (as registered with Ecology): 100N-SS-28 2. Year installed: 1976
3. Tank capacity in gallons: 2000 4. Last substance stored: UNLEADED GASOLINE

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ☐ Investigate suspected release due to on-site environmental contamination
- ☐ Investigate suspected release due to off-site environmental contamination
- ☐ Extend temporary closure of UST system for more than 12 months
- ☐ UST system undergoing change-in-service
- ☐ UST system permanently closed-in-place
- ☒ UST system permanently closed with tank removed
- ☐ Required by Ecology or delegated agency for UST system closed before December 22, 1988
- ☐ Other (describe): _____

5. CHECKLIST

Each item of the following checklist shall be initiated by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Has a release from the UST system been confirmed? NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Are the results of the site check/site assessment enclosed with this checklist? NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above.
Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

8/12/91
Date

Ronald M. Nitzke
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

8/13/91
Date

Harold S. Hunsb.
Signature of Tank Owner or Authorized Representative

9155942D
ATTACHMENT 3
1 Page



WHC-SD-EN-TI-136, Rev. 0

Department of Energy

Richland Operations Office

P.O. Box 550

Richland, Washington 99352

Mr. Mike C. Osweiler
Nuclear and Mixed Waste,
Hanford Project
State of Washington
Department of Ecology
7601 W. Clearwater, Suite 102
Kennewick, Washington 99336

Dear Mr. Osweiler:

UNDERGROUND STORAGE TANK 100N-SS-28 CLOSURE

Enclosed are the completed Permanent Closure/Change-In-Service Checklist and the Site Check/Site Assessment Checklist (two copies) for underground storage tank 100N-SS-28, which was permanently closed (removed) on July 17, 1991.

These checklists are submitted in accordance with the requirements of WAC 173-360-630 (12).

The tank which was previously emptied and rinsed has been transported to the 100-B Area where it is awaiting final disposal (salvage). The remaining system piping (two lines approximately ten feet long) and pumps are being scheduled for removal. As far as can be determined, no product remains in these lines.

If you have any questions or require additional information, please call Mr. Eric Goller at (509) 376-7326.

Sincerely,

E. A. Bracken, Director
Environmental Restoration Division

Enclosures 2

cc: w/o encls.:
P. T. Day, EPA
R. E. Lerch, WHC
T. Lufkin, Ecology

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
E. A. Bracken U.S. Dept. of Energy	Mike C. Osweiler Ecology	Incoming 9102476 XRF: 9154145D
Subject: PERMANENT CLOSURE OF UNDERGROUND STORAGE TANK 100N-SS-28		

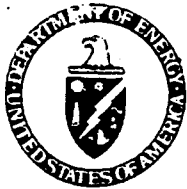
INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		M. R. Adams	H4-55	
		R. J. Bliss	B3-04	
		L. C. Brown	H4-51	
		G. D. Carpenter	B2-16	
		M. L. Douglas	R2-77	
		R. A. Evanoff	G4-10	
		K. A. Gano	X0-21	
		C. J. Geier	H4-57	
		R. P. Henckel	H4-55	
		K. L. Hoewing	B3-06	
		M. C. Hughes (2)	L4-88	X
		G. S. Hunacek	X0-42	
		R. E. Lerch (assignee)	B2-35	
		M. A. Mihalic	L4-88	X
		A. D. Poor	G4-11	
		R. L. Shuck	S4-67	
		E. H. Smith	B2-19	
		D. J. Watson	X0-41	
		R. D. Wojtasek	L4-92	
		EDMC	H4-51	x

RECEIVED

JUN 20

D. J. WATSON



WHC-SD-EN-TI-136, Rev. 0

Department of Energy

Richland Operations Office

P.O. Box 550

Richland, Washington 99352

56

Incoming: 9102476

JUN 13 1991

91-ERB-116

Mr. Mike C. Osweiler
Nuclear and Mixed Waste,
Hanford Project
State of Washington
Department of Ecology
7601 W. Clearwater, Suite 102
Kennewick, Washington 99336

Dear Mr. Osweiler:

PERMANENT CLOSURE OF UNDERGROUND STORAGE TANK (UST) 100N-SS-28

The purpose of this letter, as required by WAC 173-360-385, is to provide the Washington State Department of Ecology (Ecology) with at least 30 days advance notification prior to beginning permanent closure (removal) of UST 100N-SS-28.

This tank is located at the 100N Area of the Hanford Site, has a capacity of 2,000 gallons, and is constructed of 3/16" wall carbon steel with an asphalt coating. Originally, the 100N-SS-28 tank contained diesel fuel. Unleaded fuel was transferred from the UST 100N-SS-27 into UST 100N-SS-28 following closure of the 100N-SS-27 UST in June of 1990. The 100N-SS-28 tank was tightness tested in October of 1990 and found to be tight per 40 CFR 280/281.

This tank is no longer needed and is being removed to facilitate the site assessment of the 100N fuel station site. These two tanks were both part of a self-service gas station and were located approximately nine feet apart. Tank 100N-SS-27 was removed in December 1990 after it had failed tightness testing and the decision made, because of its age, to close the tank rather than upgrade it to new tank standards. Contaminated soil was discovered at the site after the tank was removed. (See Enclosure 1, Twenty-Day Report; and Enclosure 2, Forty-Five Day Report.)

Since this site has already been confirmed as a release site and the required 24-hour notification given after the removal of the 100N-SS-27 UST, an additional 24-hour notification pursuant to WAC 173-360-372 will not be given unless there is other evidence of a release emanating from tank 100N-SS-28. However, all other reporting requirements as given in WAC 173-340-450 will be met. A plan for the remediation of the site will be prepared following the 100N-SS-28 removal and site characterization activities, which are expected to be completed by August 15, 1991. Also, additional site characterization is being conducted to determine the extent of the contamination. Ecology will be provided with a draft of the remediation plan for review prior to initiating remedial activities.

JUN 13 1991

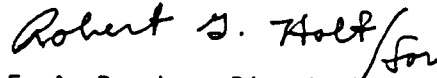
Mr. Mike C. Osweiler

-2-

91-ERB-116

If you have any questions or require additional information regarding this letter, please call Mr. Paul Pak of my staff on 376-4798.

Sincerely,



E. A. Bracken, Director
Environmental Restoration Division

ERD:PMP

Enclosures: As stated

cc w/encls:

P. T. Day, EPA
R. E. Lerch, WHC
M. C. Hughes, WHC
T. F. Veneziano, WHC
T. L. Nord, Ecology
D. Nylander, Ecology
R. F. Stanley, Ecology

WHC-SD-EN-TI-136, Rev. 0

APPENDIX C

UNUSUAL OCCURRENCE REPORTS

WHC-SD-EN-TI-136, Rev. 0

CONTENTS

Gasoline Spill to Ground (WHC-UO-88-004-R,D&EO-1)	C-1
Leaking Underground Storage Tank (RL--WHC-WHC600EM-1990-0337)	C-5
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Leaking UST (D&D/100-01-90)	C-17

WHC-SD-EN-TI-136, Rev. 0



Westinghouse
Hanford Company

WHC-SD-EN-TI-136, Rev. 0

P.O. Box 1970 Richland, WA 99352

March 11, 1988

8851734

Mr. J. L. Rhoades, Assistant Manager
Safety, Safeguards and Quality Assurance
U. S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Mr. Rhoades:

UNUSUAL OCCURRENCE WHC-00-88-004-R,D&EO-1, GASOLINE SPILL TO GROUND, 89 GALLONS

Reference: Letter, M. W. Walcher to J. L. Rhoades, "Unusual Occurrence WHC-00-88-004-R,D&EO-1, GASOLINE SPILL TO GROUND, 89 GALLONS", 8850715, February 1, 1988

The attached final Unusual Occurrence Report for the subject gasoline spill is provided for your information. It has undergone a controlled nuclear information review and has been determined to be unclassified and satisfactory for public release.

Very truly yours,

M. W. Walcher, Manager
Operations Support Services

pck

Attachment

DOE-RL - A. W. Kellogg, AMO Operations Office

C-1

Westinghouse Hanford Company

Report Number: WHC-UO-88-004-R,D&EO-1

Date of Event/Occurrence: January 18, 1988

Status and Date: _____ Initial 1/28/88 Time of Event/Occurrence: 2:10 p.m.

X Final 3/11/88

1. Department or Project

Operations Support Services

2. Facility, System, and/Equipment

100-N Fuel Station, 1716 NA Building

Vehicle: 68C 4365

Nozzle: OPW11A 15/16 and OPW11-AKH 13/16

3. Subject of Event/Occurrence

Gasoline Spill to Ground, 89 gallons

4. Apparent Cause: Design _____ Material X Personnel P Procedure _____ Other _____

Personnel: Inattention to fueling activities and failure to report the second spill.

Material: Failure of the fueling nozzle automatic shut off function.

5. Description of Event/Occurrence:

Employee was dispensing fuel from tank truck, 68C 4365, (equipped with three separate storage tanks and dispensing systems) into underground fuel tanks at the 100-N fueling station. He placed the fuel dispensing nozzle into the 4" fill spout of the service station tank, set the automatic shut-off and returned to his truck to complete related paperwork while waiting for the tank to fill. The nozzle did not shut off and the tank overflowed. The employee did not observe the spillage until a passerby walked up to the truck to inform him of the overflowing condition. The fuel truck driver immediately turned the nozzle off manually. The passerby noted the fuel truck driver was in the truck attending paperwork and wearing radio headphones which may have contributed to his inattention to fueling activities. The spill was reported to N-Reactor Operations Management and the Supervisor, Special Delivery Services. Initial assessment of the spill area was done by N-Reactor Operations Management personnel. Environmental Assurance was advised.

The employee then proceeded to manually fill the second underground tank with the remaining fuel in the first tank of the truck. When that truck tank was drained, he stored the hose and nozzle and proceeded to continue filling the second service station tank from the second truck tank with a different nozzle. He set the new nozzle on automatic and stepped back to remain clear of the fumes.

This nozzle also failed to shut off causing an overflow of the second tank. The employee alertly stopped the flow of fuel as quickly as possible. The employee did not report the second spill thinking it was an insignificant amount based on earlier conversations with N-Reactor Operations Management personnel at the first spill.

6. Operating Conditions of Facility at Time of Event/Occurrence:

The service station was available for refueling. Three utility carts were parked adjacent to the station in the area where the fuel truck normally parks. This made it necessary to position the fuel truck 40 to 50 feet further away from the service station tanks than usual.

7. Immediate Evaluation:

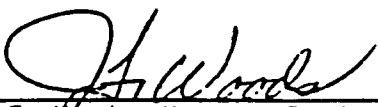
The spill area was roped off. The immediate assessment at the time of the first spill was that the amount was not significant enough to require reporting as an Unusual Occurrence. The Environmental Protection Representative, later in the day, calculated the spill area and determine that the amount of fuel spilled exceeded the unusual occurrence reporting requirements of 220 pounds (35 gallons). Subsequent review of fueling and inventory records determined that a total of 89 gallons was spilled.

8. Immediate Action Taken and Results:

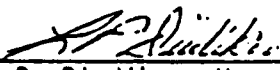
Action Taken:

- o Required report was made to DOE-RL..
- o Clean up and stabilization of the spill area was completed on January 20, 1988. The contaminated soil was loaded in 55 gallon drums for storage at the 1100 Area 90 day Storage Facility pending disposal.
- o Disciplinary action was taken against the employee for carelessness in performance of his work and failure to report in accordance with established procedures.
- o All employees in the Road, Delivery and Equipment Operation Section have been instructed that the use of personal radios with headphones is inappropriate in the work place and shall not be permitted.
- o The defective nozzles were replaced on January 20, 1988, and tested to determine the cause of failure. Evaluation of the cause of the nozzle failures was completed by February 12, 1988. The results of the evaluation were inconclusive lending even more credence to the need for personnel attentiveness.

15. Signatures

Originator  Date 3/10/88
J. F. Woods, Manager-Road, Delivery and Equipment Operations

Approved by  for Date 3/10/88
W. J. Schlauder, Manager-Site Services

Approved by  Date 3-10-88
L. P. Diediker, Manager-100 Areas Environmental Protection

Approved by  Date 3/10/88
C. D. Hansen, Security Classification Review

Approved by _____ Date _____
M. W. Walcher, Manager-Operations Support Services

RL--WHC-WHC600EM-1990-0337

UNOFFICIAL COPY
OCCURRENCE REPORT10 Day Update
(Incomplete)

600 Area/Env. Restoration-Waste Mgmt

(Name of Facility)

(Facility Function Involved)

HANFORD SITE

(Name of Laboratory, Site or Organization)

Name: Evanoff, Richard
Title: Fleet Maintenance Manager
Telephone No.: (509)376-6680 (FTS)444-6680

(Facility Manager/Designee)

Name: Mihalic, M.
Title: Hanford Surplus Facility Program
Telephone No.: (509)376-0967 (FTS)444-0967

(Originator)

1. OCCURRENCE REPORT NUMBER: RL--WHC-WHC600EM-1990-0337

2. REPORT TYPE AND DATE: Date Time

<input type="checkbox"/> Notification Report	12/19/90	
<input type="checkbox"/> 10 Day Report	01/07/91	
<input checked="" type="checkbox"/> 10 Day Update (latest)		
<input type="checkbox"/> Final Report		

3. OCCURRENCE CATEGORY :

☐ Emergency
☒ Unusual
☐ Off-Normal

4. DIVISION OR PROJECT :

5. DOE PROGRAM OFFICE :

EM - Environmental Restoration

WHC-SD-EN-TI-136, Rev. 0

RL--WHC-WHC600EM-1990-0337

UNOFFICIAL COPY
OCCURRENCE REPORT

10 Day Update
(Incomplete)

6. SYSTEM, BLDG., OR EQUIPMENT : 7. UCNI? : 8. PLANT AREA :
 Gas Station Tank No 100 N
9. DATE AND TIME DISCOVERED : 10. DATE AND TIME CATEGORIZED :
 12/18/90 1300 12/18/90 1400
11. DOE NOTIFICATION :
 12/18/90 1500
12. OTHER NOTIFICATIONS :
 12/18/90 ---- Ganeo, Ken

-
13. SUBJECT OR TITLE OF OCCURRENCE :
 Leaking Underground Storage Tank

-
14. NATURE OF OCCURRENCE :

-
15. DESCRIPTION OF OCCURRENCE :

During routine Underground Storage Tank (UST) removal as described in WHC-SP-0472, Implementation Plan for Title 40 CFR Regulations, Part 280 and 281, tank 100N-SS-27, located at 100N area was found to have contaminated soil adjacent to the tank. This UST had been utilized to store unleaded gasoline. Visual inspection of the tank did not indicate the tank integrity had been breached. Contaminated soil was found on the lower one third of the tank on the opposite end of the fill connection. It appears that an unknown quantity of unleaded gasoline had been spilled over the years, possibly from the adjacent tank, whose fill connection is within five feet of where the contamination was found.

-
16. OPERATING CONDITIONS OF FACILITY AT TIME OF OCCURRENCE :

Tank 100N-SS-27 had been taken out of service after routine tightness testing determined the tank had a leak.

17. ACTIVITY CATEGORY :

18. IMMEDIATE ACTIONS TAKEN AND RESULTS :

Sampling was completed, then additional sampling was conducted to determine how deep the contamination penetrated, this sampling revealed that the contamination had not penetrated below four inches from the bottom of the tank. Hanford Surplus Facility Program Office (Mike Mihalic) was notified of the leak at 1400 hours December 18, 1990. The Programs Office notified Environmental Protection. As this project is being performed under approved decommissioning work procedures, and it had been anticipated that the soil contamination could/would be found, this Occurrence Report is submitted for notification purposes. A complete detailed report will be prepared and submitted upon completion of the sample analysis. By copy of the unusual occurrence report, Environmental Engineering is requested to perform the necessary evaluation, notification, and remedial action as required by 40 CFR 280/281.

19. DIRECT CAUSE :

20. CONTRIBUTING CAUSE(S) :

21. ROOT CAUSE :

22. DESCRIPTION OF CAUSE :

From reconstructing the most likely cause of the contaminated soil found during the removal of tank 100N-27, it was observed that the tank condition did not indicate the tank to be a leaker. There has been one reportable spill at this location in 1988. It is assumed there have been other unreported spills at this tank fill location. The gravel and porous backfill surrounding the tanks creates a natural pathway for surface spills, to the location where the contaminated soil was found.

RL--WHC-WHC600EM-1990-0337

UNOFFICIAL COPY
OCCURRENCE REPORT

10 Day Update
(Incomplete)

23. EVALUATION : (By Facility Manager/Designee)

Current plan is to remove the layer of contaminated soil from the tank impression, sample for organic vapors and backfill once the excavation is clean.

24. IS FURTHER EVALUATION REQUIRED? : Yes [] No [X]

IF YES - BEFORE FURTHER OPERATION? : Yes [] No [X]

BY WHOM? :

BY WHEN? : --/--/--

25. CORRECTIVE ACTIONS :

(* = Date added/revised since final report was signed off)

- 1) On 1991/01/04, the contaminated soil was removed from the tank impression and the site cleared. Resampling of the site is being scheduled prior to backfilling.

TARGET COMPLETION DATE: --/--/--

COMPLETION DATE: --/--/--

26. IMPACT ON ENVIRONMENT, SAFETY AND HEALTH :

No worker was exposed to gasoline vapors during the excavation of the tank. The total quantity of the spills is unknown except for the reported spill January 18, 1988. Impact to the environment was minimal. Approximately 3 cubic yards of soil was contaminated.
Impact Oversight Group: Environmental Assurance

27. PROGRAMMATIC IMPACT :

None at this time.

28. IMPACT UPON CODES AND STANDARDS :

The excavation of the tank was in accordance with the requirements of 40 CFR 280.71. No changes are required to existing procedures.

RL--WHC-WHC600EM-1990-0337

UNOFFICIAL COPY
OCCURRENCE REPORT

10 Day Update
(Incomplete)

29. FINAL EVALUATION AND LESSONS LEARNED :

The purpose of removing underground storage tanks having contained petroleum products in accordance with 40 CFR 280.71 is to remove inactive and/or leaking tanks from service and from the ground. The regulations also require the clean up of spills associated with the tanks. This is the fourth of twenty-seven tanks removed to date where soil contamination has been found.

30. SIMILAR OCCURRENCE REPORT NUMBERS :

Fact sheet DD/3000-5-001-89
DD/703-1-01-89
DD/100-01-89

31. DOE FACILITY REPRESENTATIVE INPUT :

Entered by:

Date: --/--/--

OCCURRENCE REPORT NUMBER
RL-WHC-WHC600EM-1990-337

Leaking underground storage tank.

25. CORRECTIVE ACTIONS:

This update describes the site investigation and remediation at the 100N Services Station. At this service station, two underground storage tanks were removed: 100N-SS-27 was removed in December 1990 and 100N-SS-28 was removed in July 1991.

Tank 100N-SS-27

The excavation and removal of tank 100N-SS-27 was completed on December 18, 1990. Approximately 25 feet of associated piping was removed from the ground along with the tank. An inspection of the tank did not reveal any holes or cracks. Field sampling conducted following the removal of the tank indicated the presence of volatile organics between it and the adjacent tank, 100N-SS-28. On January 11, 1991 additional soil was removed from between the tanks and found to be contaminated.

Tank 100N-SS-28

To further characterize and facilitate closure of the 100N-SS-27 site, tank 100N-SS-28 was removed in July 1991. At the time of removal of 100N-SS-28, saturated soil was observed in the tank depression. There had been no petroleum in the 100N-SS-28 tank as of December 1990 for safety reasons due to the removal of 100N-SS-27. The saturated soil was approximately 12 feet below land surface. The soil was removed and placed in four 55 gallon hazardous waste drums and disposed as a hazardous waste. In July and August 1991 groundwater samples were collected and tested for volatile organics. The analytical results indicated that no hydrocarbon contamination is present in the groundwater.

In September 1991, the UST site was excavated from 14 feet to 27 feet below land surface. At that depth, contaminated soil was found. This soil was removed and placed on plastic sheeting, bermed, and barricaded.

In order to determine the extent of petroleum contamination, it is planned to drill two wells since the site may not be able to be clean closed. These wells are to be placed at the plum location and down gradient of the service station. This additional work is planned during May-August time frame 1992.

N-Reactor and 100K Fuel Storages

(Name of Facility)

Category "A" Reactors

(Facility Function Involved)

HANFORD SITE

(Name of Laboratory, Site or Organization)

Name: Davis, Kenneth W.
Title: Senior Plant Engineer
Telephone No.: (509)373-3143 (FTS)440-3143

(Facility Manager/Designee)

Name: G. S. Hunacek Jr.
Title: Environmental Engineer
Telephone No.: (509)373-1673 (FTS)440-1673

(Originator)

1. OCCURRENCE REPORT NUMBER: RL--WHC-NREACTOR-1991-1030

2. REPORT TYPE AND DATE:	Date	Time
<input type="checkbox"/> Notification Report	07/18/91	1106 (MTZ)
<input type="checkbox"/> 10 Day Report	07/18/91	
<input type="checkbox"/> 10 Day Update (latest)		
<input checked="" type="checkbox"/> Final Report		

3. OCCURRENCE CATEGORY :

☐ Emergency
☒ Unusual
☐ Off-Normal

4. DIVISION OR PROJECT :

100N Operations

5. DOE PROGRAM OFFICE :

DP - Defense Programs

6. SYSTEM, BLDG., OR EQUIPMENT :	7. UCNI? :	8. PLANT AREA :
Tank 100N-SS-28	No	100N
9. DATE AND TIME DISCOVERED :	10. DATE AND TIME CATEGORIZED :	
07/17/91 1200	07/17/91 1230	
11. DOE NOTIFICATION :		
07/18/91 1530	UNKNOWN	DOE/HQ
12. OTHER NOTIFICATIONS :		
07/17/91 1230	P. M. Pack	DOE-RL
07/17/91 1700	L. A. Huffman	DOE-RL
07/17/91 1230	M. C. Osweiler	WDOE
07/18/91 0945	G. D. Trump	ONC

13. SUBJECT OR TITLE OF OCCURRENCE :

Characterization of spill site

14. NATURE OF OCCURRENCE :

- 2) Environmental
B. Hazardous Substances/Regulated Pollutants/Oil Releases

15. DESCRIPTION OF OCCURRENCE :

It was reported on 12/18/92, under Occurrence Report number: RL--WHC-WHC600EM-1990-0337, that one service station tank (100-SS-27) had leaked. To further characterize that leak, tank 100N-SS-28 was removed on 7/17/91. At the time of removal of tank 100N-SS-28, petroleum product was observed in the excavation area. Tank 100N-SS-28 was tightness tested 10/90 and passed. There has been no petroleum in 100N-SS-28 since it was emptied in December 1990. The excavation was approximately 12 feet below grade. Area that was found to contain product material was ten feet by ten feet.

16. OPERATING CONDITIONS OF FACILITY AT TIME OF OCCURRENCE :

N-Reactor is in "Transition to Shutdown". The re-fueling station has been deactivated and its storage tanks removed.

17. ACTIVITY CATEGORY :

Shutdown

18. IMMEDIATE ACTIONS TAKEN AND RESULTS :

Sampled the affected soil to determine what petroleum product was present.

Removed petroleum saturated soil and placed in four 55 gallon hazardous waste drums, and placed said drums on the 163N less than 90-day storage pad.

19. DIRECT CAUSE :

- 3) Personnel Error
 - B. Inattention to Detail

20. CONTRIBUTING CAUSE(S) :

21. ROOT CAUSE :

- 6) Management Problem
 - A. Inadequate Administrative Control
-

22. DESCRIPTION OF CAUSE :

From reconstructing the most likely cause of the contaminated soil found during the removal of tank 100N-SS-27, it was observed that the tank condition did not indicate it to be a leaker.

There has been one reportable above ground spill at this location in 1988. It is assumed there have also been other, unreported, above ground spills at this re-fueling station. The gravel and porous backfill surrounding the tanks creates a natural pathway for surface spills, to the location where the contaminated soil was found.

Therefore, the cause is determined to be the result of inadequate administrative control of the servicing activities at this station in the past, resulting in spillage and consequent soil contamination.

23. EVALUATION : (By Facility Manager/Designee)

See item #29

24. IS FURTHER EVALUATION REQUIRED? : Yes [] No [X]

IF YES - BEFORE FURTHER OPERATION? : Yes [] No [X]

BY WHOM? :

BY WHEN? : --/--/--

25. CORRECTIVE ACTIONS :

(* = Date added/revised since final report was signed off)

- 1) Complete site drilling, soil sampling and field analysis of samples.

ACTIONEE: D.J. Watson (11120)

TARGET COMPLETION DATE: 08/01/92

COMPLETION DATE: 08/15/92

- 2) Scope remaining site remedial actions.

ACTIONEE: D.J. Watson (11120)

TARGET COMPLETION DATE: 01/31/93

COMPLETION DATE: 01/27/93

- 3) Complete soil sample laboratory analysis, review analysis, validate data and schedule any additional corrective actions that may be determined to be necessary at that time.

ACTIONEE: D.J. Watson (11120)

TARGET COMPLETION DATE: 12/01/92

COMPLETION DATE: 12/01/92

- 4) Implement remedial action schedule.

ACTIONEE: D.J. Watson (11120)

TARGET COMPLETION DATE: 03/31/93

COMPLETION DATE: --/--/--

- 5) Conclude document closure and notify Washington State Ecology department of closure.

ACTIONEE: D.J. Watson (11120)

TARGET COMPLETION DATE: 12/12/93

COMPLETION DATE: --/--/--

26. IMPACT ON ENVIRONMENT, SAFETY AND HEALTH :

Potential for environmental degradation.

27. PROGRAMMATIC IMPACT :

None.

28. IMPACT UPON CODES AND STANDARDS :

None.

29. FINAL EVALUATION AND LESSONS LEARNED :

The purpose of removing underground storage tanks having contained petroleum products in accordance with 40 CFR 280.71 is to remove inactive and/or leaking tanks from service and from the ground. The regulations also require the clean up of spills associated with the tanks. This is the fourth of twenty-seven tanks removed to date where soil contamination has been found.

TANK 100N-SS-27

The excavation and removal of tank 100N-SS-27 was completed on Dec. 18, 1990. Approximately 25 feet of associated piping was removed from the ground along with the tank. An inspection of the tank did not reveal any holes or cracks. Field sampling conducted following the removal of the tank indicated the presence of organics between it and the adjacent tank, 100N-SS-28. On January 11, 1991 additional soil was removed from between the tanks and found to be contaminated.

TANK 100N-SS-28

To further characterize and facilitate closure of the 100N-

SS-27 site, tank 100N-SS-28 was removed in July 1991. At the time of the removal of 100N-SS-28, saturated soil was observed in the tank depression. There had been no petroleum in the 100N-SS-28 tank. The saturated soil was approximately 12 feet below land surface. The soil was removed and placed in four 55 gallon hazardous waste drums and disposed of as a hazardous waste. In July and August of 1991 groundwater samples were collected and tested for volatile organics. The analytical results indicated that no hydrocarbon contamination is present in the groundwater.

In September 1991 the UST site was excavated from 14 feet to 27 feet below the land surface. At that depth, contaminated soil was found. This soil was removed and placed in plastic sheeting, bermed, and barricaded.

In order to determine the extent of the petroleum contamination, it is planned to drill two wells, since the site may not be able to be clean closed. These wells are to be placed at the plume location and down gradient of the service station. This additional work is planned to be completed by mid-December 1993.

The corrective actions associated with this incident are also being tracked on occurrence report RL--WHC-WHC600EM-1990-0337.

30. SIMILAR OCCURRENCE REPORT NUMBERS :

RL--WHC-WHC600EM-1990-0337

31. DOE FACILITY REPRESENTATIVE INPUT :

This report has been reviewed and revised several times to clarify and correct mistakes. It has been reviewed and found to be acceptable at this time. The reviews have been done by both Charlie Loftis, DOE-RL site representative as well as by D.W. Templeton, Chief, Facility Surveillance Branch.

Entered by: Templeton, Dave W.

Date: 05/29/92

EVENT FACT SHEET AND CRITIQUE
DISTRIBUTION LIST

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HF DAUGHERTY	R2-53
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JW HAGAN	G6-55
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DM LUCOFF	N2-34
MA PAYNE	S5-66
RJ PYZEL	X0-42
WG RUFF	R2-50
WJ SCHLAUDER	G4-02
RG SLOCUM	R2-34
EF VOTAW	G1-35
WP WHITING	B3-30
JC WIBORG (2)	R3-09
CORRES CONTROL	R1-03
QSDM	N1-18

US DEPARTMENT OF ENERGY

RE GERTON, DIRECTOR, WASTE
MANAGEMENT DIVISION A6-80

RA HOLTEN, DIRECTOR, ENVIRONMENT &
SAFETY DIVISION A5-55

RD IZATT, DIRECTOR, ENVIRONMENTAL
RESTORATION DIVISION A6-95

KH JACKSON, DIRECTOR, SAFEGUARDS &
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JE MECCA, ACTING DIRECTOR, OPERATIONS
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LC WILLIAMS, DIRECTOR, PROJECT
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DE Stocker	G4-11
DR Speer	R2-77
GE Van Sickle	R1-15
DJ Watson	X0-41
VR Weil	G4-04

JUN 22 1990

"Entire Dist." 3-1266

IF THERE ARE ANY CHANGES OR DELETIONS TO THIS LIST, PLEASE CALL VICKI ON 3-1266.
LIST UPDATED ON 6-5-90.

EVENT FACT SHEET

CONTRACTOR : WHC

-
1. Title: Leaking UST
 2. Reporting Organization: Decommissioning Engineering
 3. Division/Department/Project: Environmental/Hanford Restoration Oper.
 4. Number: D&D/100-01-90
 5. Rev.: 0
 6. Date of Event/Time: 6/21/90, 2:00pm
 - Date Discovered: 6/21/90
-

7. Event Identification:

- A) Location of Event: 100-N Service Station (Tank 100-N-SS-27)
 - B) Plant/Facility Status: Station was out-of-service for testing
-

- | | |
|--|---|
| 1. Alarm: Facility Type
(False Fire, CAM, CAS, etc.) | 5. Radiological - Personnel
Contamination, Internal
Deposition, Over Exposure, etc. |
| 2. Regulatory Requirement
(CERCLA, RCRA, WDOE, DOE-RL,
DOE-HQ, etc.) | 6. Industrial Safety, Personnel
Injury, First Aid, etc. |
| 3. Operating Requirements (OSR,
CPS, Tech Spec., Procedure
Administrative, etc.) | 7. Process Misrouting |
| 4. Release/Spread - Radioactive
Contamination/Hazardous
Material | 8. Utility System - Electrical,
Steam, Air, Water |
| | 9. Hoisting/Lifting |
| | 10. Other |

C) Event Type: 2 (40CFR280.43 [C])

OSR/TS: Nonconformance	<input type="checkbox"/>	Violation	<input type="checkbox"/>
CPS: Infraction	<input type="checkbox"/>	Violation	<input type="checkbox"/>

8. Apparent Cause(s) of Event:

Design	<input type="checkbox"/>	Administrative Control	<input type="checkbox"/>
Personnel Error	<input type="checkbox"/>	Procedure	<input type="checkbox"/>
Material	<input type="checkbox"/>	Other: [X] Tank age	

9. Description of Event:

While preparing for routine UST Tightness Testing, the 100-N-SS-27 tank was determined to have a leak. The leak is in the top 10% of the tank volume (probably at the fill pipe to tank connection) as evidenced by satisfactory inventory control data for this tank (less than 1% discrepancy on the last 6 to 12 months). The total release of unleaded gasoline is estimated at less than 5 gallons occurring between 6/20/90 (tank fill for testing) and 6/21/90 (discovery of leak).

10. Consequences of Event:

Small release of unleaded gasoline (less than 5 gallons)

11. Actions Taken (A) or Planned (B):

1. 24 hour WDOE notification (A)
2. Remove tank contents (B - 6/22/90)
3. Followup notification to WDOE (B - 7/12/90)
4. Permanent tank closure (B - 6/21/91)

12. Tentative Disposition:Event meets criteria for a Unusual Occurrence Report (UOR) ☐Event meets criteria for a Critique ☐Undetermined: Revised EFS will be issued in 3 working days ☐Above criteria not met: no further report ☒13. Signatures:

M.A. Mihal for M.R. Horton 6-22-90
Originator/Date

M.A. Mihal 6-22-90
Approved/Date

S. L. Amis 6-22-90
ADC/UCNI Review Official Review date

WHC-SD-EN-TI-136, Rev. 0

APPENDIX D

VALIDATED SAMPLE DATA

WHC-SD-EN-TI-136, Rev. 0

CONTENTS

Table	D-iv
182 Tanks (Sample Date 11/30/90)	D-1
182 Caissons (Sample Date 4/5/91)	D-125
182 Caissons (Sample Date 4/26/92)	D-135
105 LFT (Sample Date 4/30/92)	D-157
100-N-SS-27 (Sample Date 12/18/90)	D-185
100-N-SS-28 (Sample Dates 7/16/91 and 7/17/91)	D-225
100-N-SS-28 (Sample Date 4/29/92)	D-245
100-N Gas Station "Lust" (Sample Date 9/9/92)	D-259

Table D-1. Validated Sample Information Sequence.

LOCATION	DATE	SAMPLES
Tank 182-N-1-DT	11/30/90	N-101 thru N-108
Tank 182-N-2-DT	11/30/90	N-109 thru N-116
Tank 182-N-3-DT	11/30/90	N-117 thru N-126, N-127*
Caisson 182-N-1-DT	03/05/91	MK-103
Caisson 182-N-2-DT	03/05/91	MK-102
Caisson 182-N-3-DT	03/05/91	MK-101, MK-105, MK-104*
Caisson 182-N-1-DT	03/26/92	B01GM3
Caisson 182-N-2-DT	03/26/92	B01GM1, B01GM2
Caisson 182-N-3-DT	03/26/92	B01GM0
Tank 105-N-LFT	12/07/90	N-128 thru N-133 (LOST)
Tank 105-N-LFT	03/30/92	B01GM4 thru B01GM8, B01GM9*
Tank 100-N-SS-27	12/18/90	27-101*, 27-102 thru 27-106
Tank 100-N-SS-28	07/16/91	B00ZN6, B00ZN7, B00ZN8*, B00ZN9*
Tank 100-N-SS-28	07/17/91	B00ZP0 thru B00ZP4, B00ZP5*, B00ZP6*
Tank 100-N-SS-28	04/29/92	B06D35*, B06D36, B06D37
Tank 100-N-SS-28 BOREHOLE	09/09/92	B076C4 thru B076C6, B076D0, B076C7*, B076C8*, B076C9*

* Denotes trip/equipment blanks

This table correlates sample numbers associated with each sample activity. All validated sample information in Appendix C follows the sequence of this table.

WHC-SD-EN-TI-136, Rev. 0

182 TANKS

Sample Date November 30, 1990

WHC-SD-EN-TI-136, Rev. 0



Westinghouse
Hanford Company

WHC-SD-EN-TI-136, Rev. 0

Internal
Memo

From: Office of Sample Management
Phone: 3-3419 MO-346/200W T6-08
Date: April 8, 1991
Subject: TRANSMITTAL OF VALIDATED DATA FOR THE UNDERGROUND
STORAGE TANK REMOVAL PROJECT (TRANS #1)

28600-91-032


To: R. C. Roos H4-55

cc: R. P. Henckel H4-55*
J. H. Kessner T6-08*
E. J. Kosiancic S0-61*
K. S. Pedersen S4-67*
R. G. Shuck S4-67*
JAL File/LB
*w/o enclosures

Validated sample data from the Underground Storage Tank Removal Project is being transmitted by the Office of Sample Management (OSM) for the Delivery Group N-101. The delivery group contains results for 33 soil samples which were analyzed by the Martin Marietta Energy Systems, Incorporated, K-25 Laboratory for volatile and semi-volatile organics.

The Office of Sample Management data validation procedure is a review of laboratory performance and implementation of applicable protocols. Subsequent technical data evaluation by project lead personnel should include a determination of the appropriateness of results from a standpoint of past history and present knowledge of the sample site.

If you have any questions, please contact me at the number listed above.


J. A. Lerch
Scientist

tjn

Enclosure

Table 2. Sample Identification in Project 90-027

OSM Sample ID	Lab Sample ID	Lab File ID	Matrix	Comments
N-101	901206-019	NA	Soil	Sample
	901213-028		Water	BNA Blank
	901211-004		Water	VOA Blank
N-102	901206-020	NA	Soil	Sample
	901210-025		Water	VOA Blank
N-103	901206-021	NA	Soil	Sample
N-104	901206-022	NA	Soil	Sample
N-105	901206-023	NA	Soil	Sample
N-106	901206-024	NA	Soil	Sample
N-107	901206-025	NA	Soil	Sample
N-107-MS	901206-026	NA	Soil	Matrix Spike
N-107-MSD	901206-027	NA	Soil	Matrix Spike
				Duplicate
N-108	901206-028	NA	Soil	Sample
N-109	901206-029	NA	Soil	Sample
N-110	901206-030	NA	Soil	Sample
N-111	901206-031	NA	Soil	Sample
N-112	901206-032	NA	Soil	Sample
N-113	901206-033	NA	Soil	Sample
N-114	901206-034	NA	Soil	Sample
N-115	901206-035	NA	Soil	Sample
N-116	901206-036	NA	Soil	Sample
	901214-083		Water	BNA Blank
N-117	901206-037	NA	Soil	Sample
N-118	901206-038	NA	Soil	Sample
N-118-MS	901206-039	NA	Soil	Matrix Spike
N-118-MSD	901206-040	NA	Soil	Matrix Spike
				Duplicate
N-119	901206-041	NA	Soil	Sample
N-120	901206-042	NA	Soil	Sample
N-121	901206-043	NA	Soil	Sample
N-122	901206-044	NA	Soil	Sample
N-123	901206-045	NA	Soil	Sample
N-124	901206-046	NA	Soil	Sample
N-125	901206-047	NA	Soil	Sample
N-125D	901206-048	NA	Soil	Duplicate Sample
N-126	901206-049	NA	Soil	Sample
N-127	901206-050	NA	Soil	Sample
242-101	901209-018	NA	Soil	Sample
	901218-067		Water	BNA Blank
242-102	901209-019	NA	Soil	Sample
242-102-MS	901209-020	NA	Soil	Sample
242-103	901209-021	NA	Soil	Sample
242-104	901209-022	NA	Soil	Sample
242-105	901209-023	NA	Soil	Sample
242-105-D	901209-024	NA	Soil	Sample
242-106	901209-025	NA	Soil	Sample



OSM RCRA LEVEL C DATA ASSESSMENT

DATE 4/6/91 SAMPLES/MATRIX see attachment
 REVIEWED BY JA Lerch JF - all samples are soil
 LABORATORY K-25
 CASE # —
 SDG # N-101 (assigned by OSM)

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	VOA	SemiVOA	
1. <u>Holding time</u>		<u>0</u>	<u>X</u>	
2. <u>MS/MSD</u>		<u>0</u>	<u>X</u>	
3. <u>Duplicate Analysis</u>		<u>0</u>	<u>0</u>	
4. <u>Surrogate Recovery</u>		<u>0</u>	<u>X</u>	
5. <u>Blank Analysis</u>		<u>X</u>	<u>X</u>	
6. <u>Other - none</u>				
7. <u>—</u>				
8. <u>—</u>				
9. <u>—</u>				
10. <u>—</u>				

0 = data had no problems

X = data qualified due to minor problems

M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSMENT: no major problems - all results
acceptable w/qualification

NOTES: none

o Refer to the corresponding attachments for explanation of any problems.

Sample/Matrix Identification

Lab: K-25

SDG: N-101 (assigned by ASM)

JF
4/6/91

N-101 N-120

N-102 N-121

N-103 N-122

N-104 N-123

N-105 N-124

N-106 N-125

N-107 N-126

N-108 N-127

N-109

N-110 242-101

N-111 242-102

N-112 242-103

N-113 242-104

N-114 242-105

N-115 242-106

N-116

N-117 * all samples are soil

N-118

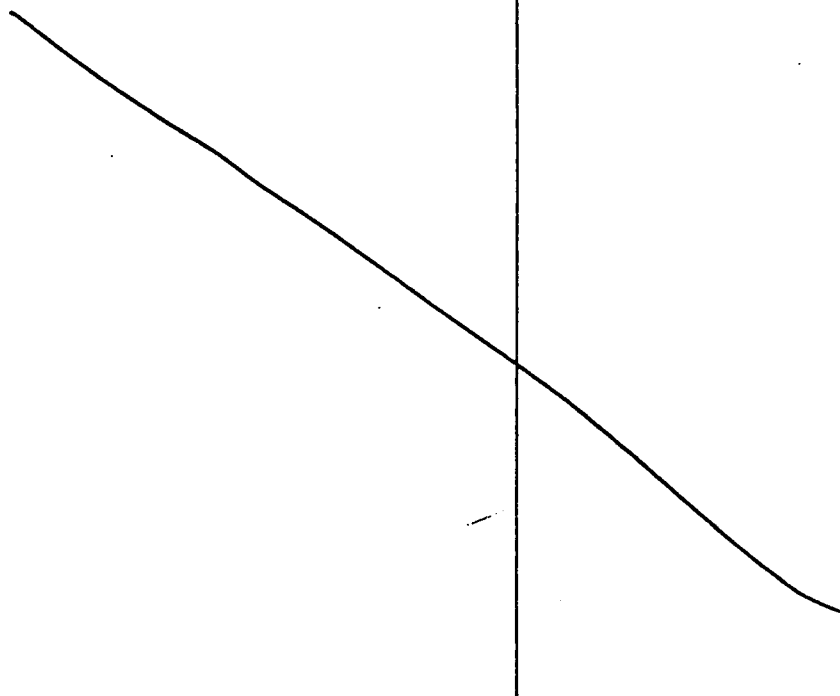
N-119

RCRA LEVEL C QCName JA Lerch ff Date 04/06/91QC Check: Holding Time

COMMENTS: VOA - all Holding time criteria met
SemiVOA - all 2412 - series samples extracted
10 days after receipt (water criteria is 7 days)
water criteria not applied to soils

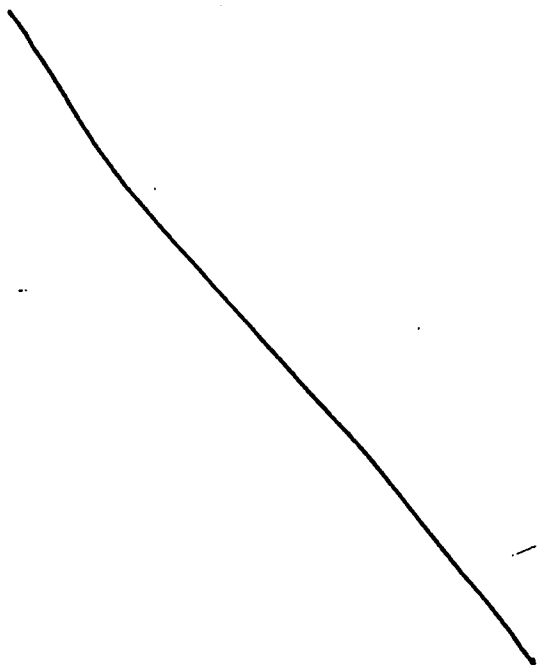
ACTION: none

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
-----------------	--------------------	-------------------	-----------------	--------------------	-------------------

1 of 6

RCRA LEVEL C QCName JA Lerch Date 04/06/91QC Check: MS/MSDCOMMENTS: see below for QC samplesVOA - all recoveries & RPD's within limitsSemiVOA - N18MS & MSD - 4-nitrophenol MS 70R &RPD outside of advisory limits, no indication of major problems
all other criteria met

ACTION: _____

ACTION: none - advisory limitssample # constituent value/qualsample # constituent value/qualVOA spikesN-107MS, N-107MSDN-118MS, N-118MSDSemiVOA spikesN-107MS, N-107MSDN-118MS, N-118MSD

RCRA LEVEL C QCName JA Lerch 17 Date 04/06/91QC Check: Duplicate Analysis

COMMENTS: Duplicate analysis not required by protocol (MS+MSD)
N125D, 242-105D - no indication of problems
with VOA, SemiVOA duplicates; RPD's OK
satisfies

ACTION: none

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
-----------------	--------------------	-------------------	-----------------	--------------------	-------------------

3 of 6

RCRA LEVEL C QCName JA Lerch Date 4/06/91QC Check: Surrogate RecoveryCOMMENTS: SemiVOA - 2 surrogates out of control limits
for N-126, 1 out for N-127; all other
recoveries within limits for all samplesVOA - all recoveries ok for all samples
ACTION: qualify associated results per
OSM guidelines

<u>SemiVOA</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
	N-126	all	J, UJ			
	N-127	all	J, UJ			

4 of 6

RCRA LEVEL C QC

Name

JA Lorch

Date

04/06/91

QC Check:

Blanks

COMMENTS: VOA - MeCl₂, acetone and several TIC's detected
in VOA blanks

SemivOA - benzoic acid, diethylphthalate, bis (2-ethylhexyl)phthalate,
di-n-butylphthalate and several TIC's detected in blanks

ACTION: qualify associated results as per OSM
guidelines

sample # constituent value/qualsample # constituent value/qualSemivOA,
VOA

• blank qualification
 criteria applied for
 the VOA, + SemivOA
 compounds listed above
 and to TIC's and
 unknowns - see data
 report sheets for
 qualification

VOA

5 of 6

RCRA LEVEL C QC

Name JA Lerch Date 04/06/91

QC Check: other

COMMENTS: none

ACTION: none

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
-----------------	--------------------	-------------------	-----------------	--------------------	-------------------

(The table body is crossed out with a large diagonal line)

6 of 6

January 29, 1991

Ms. Joan Kessner
Westinghouse Hanford Company
Office of Sample Management
2355 Stevens Drive
Richland, Washington 99352

Dear Ms Kessner:

Analytical Results Package on Projects 90-027, Tank Farm Samples

Attached are the analytical results on sample from Project 90-027, Tank Farm Samples, received into the Analytical Chemistry Department (ACD) Laboratories on December 5, 6, 7, and 9, 1990. In accordance with agreements between the OSM and K-25 ACD, the protocol shown in Table 1 was utilized in performing these analyses. The sample identification for this project is shown in Table 2.

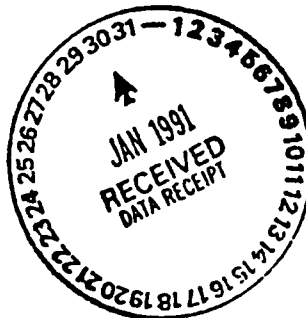
The results are reported on ACD's ANALIS report format, per letter dated December 20, 1990. All data quality objectives were satisfied on the project.

Semi-Volatiles (BNAs)

Samples received on the dates listed above were extracted and analyzed within the prescribed holding times. All surrogate standards criteria were within percent recovery acceptance limits. All DFTPP tune criteria were within acceptance criteria. All "CCC" and "SPCC" components met acceptance criteria for both the initial and continuing calibration check samples. All internal standard areas met water matrix acceptance criteria. All matrix spikes and matrix spike duplicates were within the acceptance requirements.

Volatiles (VOAs)

All surrogate standards criteria were within percent recovery acceptance limits. All BFB tune criteria were within acceptance criteria. All CCC and SPCC components met acceptance criteria for both the initial and continuing calibration check sample. All internal standard areas were within acceptance criteria for a water matrix. All matrix spikes and matrix spike duplicates were within the acceptance requirements.



Analytical Results Package on Projects 90-027, Tank Farm Samples- Continued

I certify that this data package is in compliance with the terms and conditions of the OSM's revised Statement of Work and letter dated December 20, 1990, both technically and for completeness, for other than conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Sincerely,

Clarence R. Kirkpatrick
Clarence R. Kirkpatrick
Program Manager
Waste Management Analysis

Susan L. Morrow
Roy W. Morrow
Department Manager
Analytical Chemistry Department (K-25)

Table 1. Analytical Protocol used for Project 90-027

Analysis	Protocol
A. Semi-Volatiles	BNA (CLP) protocol
B. Volatiles	VOA (CLP) protocol

AnalIS ID: 901206-019
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10646
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: M-101
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.7
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C. MEENAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	980U	106-47-8	4-Chloroaniline	980U
111-44-4	bis(2-Chloroethyl)ether	980U	87-68-3	Hexachlorobutadiene	980U
95-57-8	2-Chlorophenol	980U	59-50-7	4-Chloro-3-methylphenol	980U
541-73-1	1,3-Dichlorobenzene	980U	91-57-6	2-Methylnaphthalene	980U
106-46-7	1,4-Dichlorobenzene	980U	77-47-4	Hexachlorocyclopentadiene	980U
100-51-6	Benzyl Alcohol	980U	88-06-2	2,4,6-Trichlorophenol	980U
95-50-1	1,2-Dichlorobenzene	980U	95-95-4	2,4,5-Trichlorophenol	4700U
95-48-7	2-Methylphenol	980U	91-58-7	2-Chloronaphthalene	980U
108-60-1	bis(2-Chloroisopropyl)ether	980U	88-74-4	2-Nitroaniline	4700U
106-44-5	4-Methylphenol	980U	131-11-3	Dimethylphthalate	980U
621-64-7	N-Nitroso-di-n-propylamine	980U	208-96-8	Acenaphthylene	980U
67-72-1	Hexachloroethane	980U	99-09-2	3-Nitroaniline	4700U
98-95-3	Nitrobenzene	980U	83-32-9	Acenaphthene	980U
78-59-1	Isophorone	980U	51-28-5	2,4-Dinitrophenol	4700U
88-75-5	2-Nitrophenol	980U	100-02-7	4-Nitrophenol	4700U
105-67-9	2,4-Dimethylphenol	980U	132-64-9	Dibenzofuran	980U
65-85-0	Benzoic Acid	4700U	121-14-2	2,4-Dinitrotoluene	980U
111-91-1	bis(2-Chloroethoxy)methane	980U	606-20-2	2,6-Dinitrotoluene	980U
120-83-2	2,4-Dichlorophenol	980U	84-66-2	Diethylphthalate	980U
120-82-1	1,2,4-Trichlorobenzene	980U	7005-72-3	4-Chlorophenyl-phenylether	980U
91-20-3	Naphthalene	980U	86-73-7	Fluorene	980U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JS
04/06/91

ANALIS ID: 901206-019
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10646
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-101
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990

Preparation Procedure Number:

Percent Moisture: 5.7

Percent Moisture (decanted):

Associated Blank: 901213-028

[] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990

Analysis Procedure Number: BNA (CLP) NDP

Dilution Factor: 1.0

Analyst: C MEEHAN

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4700U	53-70-3	Dibenz(a,h)anthracene	980U
534-52-1	4,6-Dinitro-2-methylphenol	4700U	191-24-2	Benzo(g,h,i)perylene	980U
86-30-6	N-Nitrosodiphenylamine	980U			
101-55-3	4-Bromophenyl-phenylether	980U			
118-74-1	Hexachlorobenzene	980U			
87-86-5	Pentachlorophenol	4700U			
85-01-8	Phenanthrene	980U			
120-12-7	Anthracene	980U			
84-74-2	Di-n-butylphthalate	4200 U U			
206-44-0	Fluoranthene	980U			
129-00-0	Pyrene	980U			
85-68-7	Butylbenzylphthalate	980U			
91-94-1	3,3'-Dichlorobenzidine	1900U			
56-55-3	Benzo(a)anthracene	980U			
117-81-7	bis(2-Ethylhexyl)phthalate	400-78 980 U			
218-01-9	Chrysene	980U			
117-84-0	Di-n-octylphthalate	980U			
205-99-2	Benzo(b)fluoranthene	980U			
207-08-9	Benzo(k)fluoranthene	980U			
50-32-8	Benzo(a)pyrene	980U			
193-39-5	Indeno(1,2,3-cd)pyrene	980U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JL
 04/06/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry DepartmentBNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDSANALIS ID: 901206-019Laboratory: Organic Mass Spectroscopy LaboratorySample Matrix: SOILLevel: (low/med): LOWDilution Factor: 1.0% Moisture: not dec. 5.7 dec. _____Extraction: (SepF/Cont/Sonc) SoxHGPC Cleanup: (Y/N) NCustomer Sample ID: N-101Customer: J. KESSNER/R. SHUCKFile ID: 10646Date Received: 6-DEC-1990Date Analyzed: 13-DEC-1990Date Extracted: 12-DEC-1990

pH: _____

Concentration Units

(ug/L or ug/Kg): ug/KgNumber TICs found: 15

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.91	17000	JAB
2. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.82	440	JB
3.	Unknown	12.50	800	J
4. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	46.47	420	JB
5.	Unknown	17.00	400	JB
6.	Unknown	18.00	1000	JB
7. 17851-53-5	1,2-Benzenedicarboxylic acid, b	21.30	800	JB
8.	Unknown (Hydrocarbon)	21.69	410	JB
9.	Unknown	21.96	420	J
10.	Unknown (Hydrocarbon)	23.74	590	J
11.	Unknown	24.11	570	J
12.	Unknown (sat'd Hydrocarbon)	25.61	1200	JB
13.	Unknown (sat'd Hydrocarbon)	26.49	1200	JB
14.	Unknown (Hydrocarbon)	27.78	2100	J
15.	Unknown (sat'd Hydrocarbon)	28.13	630	JB
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

J
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-019
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07606
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-101
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 6
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	11U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Analysis ID: 901206-020
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10647
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-102
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 7.7
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C. MEENAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	990U	106-47-8	4-Chloroaniline	990U
111-44-4	bis(2-Chloroethyl)ether	990U	87-68-3	Hexachlorobutadiene	990U
95-57-8	2-Chlorophenol	990U	59-50-7	4-Chloro-3-methylphenol	990U
541-73-1	1,3-Dichlorobenzene	990U	91-57-6	2-Methylnaphthalene	990U
106-46-7	1,4-Dichlorobenzene	990U	77-47-4	Hexachlorocyclopentadiene	990U
100-51-6	Benzyl Alcohol	990U	88-06-2	2,4,6-Trichlorophenol	990U
95-50-1	1,2-Dichlorobenzene	990U	95-95-4	2,4,5-Trichlorophenol	4800U
95-48-7	2-Methylphenol	990U	91-58-7	2-Chloronaphthalene	990U
108-60-1	bis(2-Chloroisopropyl)ether	990U	88-74-4	2-Nitroaniline	4800U
106-44-5	4-Methylphenol	990U	131-11-3	Dimethylphthalate	990U
621-64-7	N-Nitroso-di-n-propylamine	990U	208-96-8	Acenaphthylene	990U
67-72-1	Hexachloroethane	990U	99-09-2	3-Nitroaniline	4800U
98-95-3	Nitrobenzene	990U	83-32-9	Acenaphthene	990U
78-59-1	Isophorone	990U	51-28-5	2,4-Dinitrophenol	4800U
88-75-5	2-Nitrophenol	990U	100-02-7	4-Nitrophenol	4800U
105-67-9	2,4-Dimethylphenol	990U	132-64-9	Dibenzofuran	990U
65-85-0	Benzoic Acid	990 480-48- U	121-14-2	2,4-Dinitrotoluene	990U
111-91-1	bis(2-Chloroethoxy)methane	990U	606-20-2	2,6-Dinitrotoluene	990U
120-83-2	2,4-Dichlorophenol	990U	84-66-2	Diethylphthalate	990 480-48- U
120-82-1	1,2,4-Trichlorobenzene	990U	7005-72-3	4-Chlorophenyl-phenylether	990U
91-20-3	Naphthalene	990U	86-73-7	Fluorene	990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JS
 4/6/90

ANALIS ID: 901206-020
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10647
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-102
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 7.7
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4800U	53-70-3	Dibenz(a,h)anthracene	990U
534-52-1	4,6-Dinitro-2-methylphenol	4800U	191-24-2	Benzo(g,h,i)perylene	990U
86-30-6	N-Nitrosodiphenylamine	990U			
101-55-3	4-Bromophenyl-phenylether	990U			
118-74-1	Hexachlorobenzene	990U			
87-86-5	Pentachlorophenol	4800U			
85-01-8	Phenanthrene	990U			
120-12-7	Anthracene	990U			
84-74-2	Di-n-butylphthalate	3200 U U			
206-44-0	Fluoranthene	990U			
129-00-0	Pyrene	990U			
85-68-7	Butylbenzylphthalate	990U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	990U			
117-81-7	bis(2-Ethylhexyl)phthalate	420-UB 990 U			
218-01-9	Chrysene	990U			
117-84-0	Di-n-octylphthalate	990U			
205-99-2	Benzo(b)fluoranthene	990U			
207-08-9	Benzo(k)fluoranthene	990U			
50-32-8	Benzo(a)pyrene	990U			
193-39-5	Indeno(1,2,3-cd)pyrene	990U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-020

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 7.7 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-102

Customer: J. KESSNER/R. SHUCK

File ID: 10647

Date Received: 6-DEC-1990

Date Analyzed: 13-DEC-1990

Date Extracted: 12-DEC-1990

pH:

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 14

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.99	23000	JAB
2. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.83	550	JB
3. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	16.47	510	JB
4.	Unknown	18.08	1000	JB
5. 17851-53-5	1,2-Benzenedicarboxylic acid, b	21.31	600	JB
6.	Unknown (sat'd Hydrocarbon)	25.61	960	JB
7.	Unknown	26.00	460	J
8.	Unknown (sat'd Hydrocarbon)	26.49	900	JB
9.	Unknown	27.70	2100	J
10.	Unknown (Alkyl Hydrocarbon)	28.13	620	JB
11.	Unknown (Alkyl Hydrocarbon)	28.91	420	JB
12.	Unknown (sat'd Hydrocarbon)	30.55	410	J
13.	Unknown (sat'd Hydrocarbon)	32.61	400	J
14.	Unknown	33.75	420	J
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4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-020
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07598
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: M-102
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 8
 Percent Moisture (decanted):
 Associated Blank: 901210-025
☐ : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: SL STAFFORD
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 200 U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	30 8 U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

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ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-021
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10648
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: M-103
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.5
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	1000U	106-47-8	4-Chloroaniline	1000U
111-44-4	bis(2-Chloroethyl)ether	1000U	87-68-3	Hexachlorobutadiene	1000U
95-57-8	2-Chlorophenol	1000U	59-50-7	4-Chloro-3-methylphenol	1000U
541-73-1	1,3-Dichlorobenzene	1000U	91-57-6	2-Methylnaphthalene	1000U
106-46-7	1,4-Dichlorobenzene	1000U	77-47-4	Hexachlorocyclopentadiene	1000U
100-51-6	Benzyl Alcohol	1000U	88-06-2	2,4,6-Trichlorophenol	1000U
95-50-1	1,2-Dichlorobenzene	1000U	95-95-4	2,4,5-Trichlorophenol	5100U
95-48-7	2-Methylphenol	1000U	91-58-7	2-Chloronaphthalene	1000U
108-60-1	bis(2-Chloroisopropyl)ether	1000U	88-74-4	2-Nitroaniline	5100U
106-44-5	4-Methylphenol	1000U	131-11-3	Dimethylphthalate	1000U
621-64-7	N-Nitroso-di-n-propylamine	1000U	208-96-8	Acenaphthylene	1000U
67-72-1	Hexachloroethane	1000U	99-09-2	3-Nitroaniline	5100U
98-95-3	Nitrobenzene	1000U	83-32-9	Acenaphthene	1000U
78-59-1	Isophorone	1000U	51-28-5	2,4-Dinitrophenol	5100U
88-75-5	2-Nitrophenol	1000U	100-02-7	4-Nitrophenol	5100U
105-67-9	2,4-Dimethylphenol	1000U	132-64-9	Dibenzofuran	1000U
65-85-0	Benzoic Acid	5100U	121-14-2	2,4-Dinitrotoluene	1000U
111-91-1	bis(2-Chloroethoxy)methane	1000U	606-20-2	2,6-Dinitrotoluene	1000U
120-83-2	2,4-Dichlorophenol	1000U	84-66-2	Diethylphthalate	1000 450-18 U
120-82-1	1,2,4-Trichlorobenzene	1000U	7005-72-3	4-Chlorophenyl-phenylether	1000U
91-20-3	Naphthalene	1000U	86-73-7	Fluorene	1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

J
4/6/91

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 2 of 2

AnalIS ID: 901206-021
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10648
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-103
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.5
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	5100U	53-70-3	Dibenz(a,h)anthracene	1000U
534-52-1	4,6-Dinitro-2-methylphenol	5100U	191-24-2	Benzo(g,h,i)perylene	1000U
86-30-6	N-Nitrosodiphenylamine	1000U			
101-55-3	4-Bromophenyl-phenylether	1000U			
118-74-1	Hexachlorobenzene	1000U			
87-86-5	Pentachlorophenol	5100U			
85-01-8	Phenanthrene	1000U			
120-12-7	Anthracene	1000U			
84-74-2	Di-n-butylphthalate	2900 8 U			
206-44-0	Fluoranthene	1000U			
129-00-0	Pyrene	1000U			
85-68-7	Butylbenzylphthalate	1000U			
91-94-1	3,3'-Dichlorobenzidine	2100U			
56-55-3	Benzo(a)anthracene	1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	310-38 1000 U			
218-01-9	Chrysene	1000U			
117-84-0	Di-n-octylphthalate	1000U			
205-99-2	Benzo(b)fluoranthene	1000U			
207-08-9	Benzo(k)fluoranthene	1000U			
50-32-8	Benzo(a)pyrene	1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	1000U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JJ
4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-021

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 5.5 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: M-103

Customer: J. KESSNER/R. SHUCK

File ID: 10648

Date Received: 6-DEC-1990

Date Analyzed: 13-DEC-1990

Date Extracted: 12-DEC-1990

pH:

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 8

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.94	17000	JAB
2.	Unknown	12.50	700	J
3. 17851-53-5	1,2-Benzenedicarboxylic acid,b	21.30	670	JB
4.	Unknown (Alkyl Hydrocarbon)	23.74	470	JB
5.	Unknown (Alkyl Hydrocarbon)	26.61	970	JB
6.	Unknown (sat'd Hydrocarbon)	26.49	870	JB
7.	Unknown	27.72	2300	J
8.	Unknown (sat'd Hydrocarbon)	28.12	450	JB
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Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

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ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901206-021
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07599
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: W-103
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 6
Percent Moisture (decanted):
Associated Blank: 901210-025
[] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: SL STAFFORD
QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 28 U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	28 B U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

Analysis ID: 901206-022
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10649
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-104
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.2
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	1000U	106-47-8	4-Chloroaniline	1000U
111-44-4	bis(2-Chloroethyl)ether	1000U	87-68-3	Hexachlorobutadiene	1000U
95-57-8	2-Chlorophenol	1000U	59-50-7	4-Chloro-3-methylphenol	1000U
541-73-1	1,3-Dichlorobenzene	1000U	91-57-6	2-Methylnaphthalene	1000U
106-46-7	1,4-Dichlorobenzene	1000U	77-47-4	Hexachlorocyclopentadiene	1000U
100-51-6	Benzyl Alcohol	1000U	88-06-2	2,4,6-Trichlorophenol	1000U
95-50-1	1,2-Dichlorobenzene	1000U	95-95-4	2,4,5-Trichlorophenol	4900U
95-48-7	2-Methylphenol	1000U	91-58-7	2-Chloronaphthalene	1000U
108-60-1	bis(2-Chloroisopropyl)ether	1000U	88-74-4	2-Nitroaniline	4900U
106-44-5	4-Methylphenol	1000U	131-11-3	Dimethylphthalate	1000U
621-64-7	N-Nitroso-di-n-propylamine	1000U	208-96-8	Acenaphthylene	1000U
67-72-1	Hexachloroethane	1000U	99-09-2	3-Nitroaniline	4900U
98-95-3	Nitrobenzene	1000U	83-32-9	Acenaphthene	1000U
78-59-1	Isophorone	1000U	51-28-5	2,4-Dinitrophenol	4900U
88-75-5	2-Nitrophenol	1000U	100-02-7	4-Nitrophenol	4900U
105-67-9	2,4-Dimethylphenol	1000U	132-64-9	Dibenzofuran	1000U
65-85-0	Benzoic Acid	1000 120-18 U	121-14-2	2,4-Dinitrotoluene	1000U
111-91-1	bis(2-Chloroethoxy)methane	1000U	606-20-2	2,6-Dinitrotoluene	1000U
120-83-2	2,4-Dichlorophenol	1000U	84-66-2	Diethylphthalate	1000 200-18 U
120-82-1	1,2,4-Trichlorobenzene	1000U	7005-72-3	4-Chlorophenyl-phenylether	1000U
91-20-3	Naphthalene	1000U	86-73-7	Fluorene	1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
4/6/91

AnalIS ID: 901206-022
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10649
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-104
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990

Preparation Procedure Number:

Percent Moisture: 5.2

Percent Moisture (decanted):

Associated Blank: 901213-028

[] : Result has been Corrected for Spike

Date Analyzed: 13-DEC-1990

Analysis Procedure Number: BNA (CLP) NDP

Dilution Factor: 1.0

Analyst: C. NEEHAN

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4900U	53-70-3	Dibenz(a,h)anthracene	1000U
534-52-1	4,6-Dinitro-2-methylphenol	4900U	191-24-2	Benzo(g,h,i)perylene	1000U
86-30-6	N-Nitrosodiphenylamine	1000U			
101-55-3	4-Bromophenyl-phenylether	1000U			
118-74-1	Hexachlorobenzene	1000U			
87-86-5	Pentachlorophenol	4900U			
85-01-8	Phenanthrene	1000U			
120-12-7	Anthracene	1000U			
84-74-2	Di-n-butylphthalate	2600 B U			
206-44-0	Fluoranthene	1000U			
129-00-0	Pyrene	1000U			
85-68-7	Butylbenzylphthalate	1000U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	870-18- 1000 U			
218-01-9	Chrysene	1000U			
117-84-0	Di-n-octylphthalate	1000U			
205-99-2	Benzo(b)fluoranthene	1000U			
207-08-9	Benzo(k)fluoranthene	1000U			
50-32-8	Benzo(a)pyrene	1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	1000U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
4/6/91

WHC-SD-EN-TI-136, Rev. 0
Oak Ridge K-25 Site
Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901206-022
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 5.2 dec.
Extraction: (SepF/Cont/Sonc) SoxH
GPC Cleanup: (Y/N) N

Customer Sample ID: N-104
Customer: J. KESSNER/R. SHUCK
File ID: 10649
Date Received: 6-DEC-1990
Date Analyzed: 13-DEC-1990
Date Extracted: 12-DEC-1990
pH:

Number TICs found: 16

Concentration Units
(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.04	16000	JAB
2. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.82	430	JB
3.	Unknown	12.50	740	J
4. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	16.45	470	JB
5.	Unknown (Alkyl Hydrocarbon)	19.44	560	J
6. 17851-53-5	1,2-Benzenedicarboxylic acid, b	21.30	530	JB
7.	Unknown (sat'd Hydrocarbon)	21.89	420	JB
8.	Unknown	21.94	630	J
9.	Unknown (Alkyl Hydrocarbon)	22.73	410	JB
10.	Unknown (Alkyl Hydrocarbon)	23.74	500	JB
11.	Unknown	24.11	440	J
12.	Unknown (sat'd Hydrocarbon)	25.61	810	JB
13.	Unknown	25.99	450	J
14.	Unknown (sat'd Hydrocarbon)	26.49	920	JB
15.	Unknown	27.74	2400	J
16.	Unknown (sat'd Hydrocarbon)	28.12	550	JB
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JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 1

Analysis ID: 901206-022
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07600
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: M-104
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 5
Percent Moisture (decanted):
Associated Blank: 901210-025
[] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: SL STAFFORD
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5 27 B U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	27 B U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

JS
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-023
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10652
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-105
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.0
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	980U	106-47-8	4-Chloroaniline	980U
111-44-4	bis(2-Chloroethyl)ether	980U	87-68-3	Hexachlorobutadiene	980U
95-57-8	2-Chlorophenol	980U	59-50-7	4-Chloro-3-methylphenol	980U
541-73-1	1,3-Dichlorobenzene	980U	91-57-6	2-Methylnaphthalene	980U
106-46-7	1,4-Dichlorobenzene	980U	77-47-4	Hexachlorocyclopentadiene	980U
100-51-6	Benzyl Alcohol	980U	88-06-2	2,4,6-Trichlorophenol	980U
95-50-1	1,2-Dichlorobenzene	980U	95-95-4	2,4,5-Trichlorophenol	4700U
95-48-7	2-Methylphenol	980U	91-58-7	2-Chloronaphthalene	980U
108-60-1	bis(2-Chloroisopropyl)ether	980U	88-74-4	2-Nitroaniline	4700U
106-44-5	4-Methylphenol	980U	131-11-3	Dimethylphthalate	980U
621-64-7	N-Nitroso-di-n-propylamine	980U	208-96-8	Acenaphthylene	980U
67-72-1	Hexachloroethane	980U	99-09-2	3-Nitroaniline	4700U
98-95-3	Nitrobenzene	980U	83-32-9	Acenaphthene	980U
78-59-1	Isophorone	980U	51-28-5	2,4-Dinitrophenol	4700U
88-75-5	2-Nitrophenol	980U	100-02-7	4-Nitrophenol	4700U
105-67-9	2,4-Dimethylphenol	980U	132-64-9	Dibenzofuran	980U
65-85-0	Benzoic Acid	980 220 U	121-14-2	2,4-Dinitrotoluene	980U
111-91-1	bis(2-Chloroethoxy)methane	980U	606-20-2	2,6-Dinitrotoluene	980U
120-83-2	2,4-Dichlorophenol	980U	84-66-2	Diethylphthalate	980 220 U
120-82-1	1,2,4-Trichlorobenzene	980U	7005-72-3	4-Chlorophenyl-phenylether	980U
91-20-3	Naphthalene	980U	86-73-7	Fluorene	980U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

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4/6/91

ANALIS ID: 901206-023
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10652
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: M-105
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 5.0
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4700U	53-70-3	Dibenz(a,h)anthracene	980U
534-52-1	4,6-Dinitro-2-methylphenol	4700U	191-24-2	Benzo(g,h,i)perylene	980U
86-30-6	N-Nitrosodiphenylamine	980U			
101-55-3	4-Bromophenyl-phenylether	980U			
118-74-1	Hexachlorobenzene	980U			
87-86-5	Pentachlorophenol	4700U			
85-01-8	Phenanthrene	980U			
120-12-7	Anthracene	980U			
84-74-2	Di-n-butylphthalate	3600 B U			
206-44-0	Fluoranthene	980U			
129-00-0	Pyrene	980U			
85-68-7	Butylbenzylphthalate	980U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	980U			
117-81-7	bis(2-Ethylhexyl)phthalate	560-18 980 U			
218-01-9	Chrysene	980U			
117-84-0	Di-n-octylphthalate	980U			
205-99-2	Benzo(b)fluoranthene	980U			
207-08-9	Benzo(k)fluoranthene	980U			
50-32-8	Benzo(a)pyrene	980U			
193-39-5	Indeno(1,2,3-cd)pyrene	980U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-023

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 5.0 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-105

Customer: J. KESSNER/R. SHUCK

File ID: 10652

Date Received: 6-DEC-1990

Date Analyzed: 14-DEC-1990

Date Extracted: 12-DEC-1990

pH:

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 13

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.93	19000	JAB
2.	Unknown	12.56	470	J
3. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	16.44	410	JB
4. 17851-53-5	1,2-Benzenedicarboxylic acid, b	21.29	800	JB
5.	Unknown (sat'd Hydrocarbon)	21.68	450	JB
6.	Unknown (Alkyl Hydrocarbon)	23.73	470	JB
7.	Unknown	24.10	500	J
8.	Unknown (sat'd Hydrocarbon)	25.60	1100	JB
9.	Unknown (Alkyl Hydrocarbon)	26.48	1100	JB
10.	Unknown	27.71	2400	J
11.	Unknown (sat'd Hydrocarbon)	28.12	410	JB
12.	Unknown (sat'd Hydrocarbon)	28.90	410	JB
13.	Unknown	33.88	570	J
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12
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-023
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07607
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-105
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 5
 Percent Moisture (decanted):
 Associated Blank: 901211-004
☐ : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 U U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	11U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901206-024
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10653
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: W-106
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990

Preparation Procedure Number:

Percent Moisture: 3.3

Percent Moisture (decanted):

Associated Blank: 901213-028

[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990

Analysis Procedure Number: BNA (CLP) NDP

Dilution Factor: 2.0

Analyst: C MEEHAN

QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
108-95-2 Phenol	2000U	106-47-8 4-Chloroaniline	2000U
111-44-4 bis(2-Chloroethyl)ether	2000U	87-68-3 Hexachlorobutadiene	2000U
95-57-8 2-Chlorophenol	2000U	59-50-7 4-Chloro-3-methylphenol	2000U
541-73-1 1,3-Dichlorobenzene	2000U	91-57-6 2-Methylnaphthalene	2000U
106-46-7 1,4-Dichlorobenzene	2000U	77-47-4 Hexachlorocyclopentadiene	2000U
100-51-6 Benzyl Alcohol	2000U	88-06-2 2,4,6-Trichlorophenol	2000U
95-50-1 1,2-Dichlorobenzene	2000U	95-95-4 2,4,5-Trichlorophenol	9500U
95-48-7 2-Methylphenol	2000U	91-58-7 2-Chloronaphthalene	2000U
108-60-1 bis(2-Chloroisopropyl)ether	2000U	88-74-4 2-Nitroaniline	9500U
106-44-5 4-Methylphenol	2000U	131-11-3 Dimethylphthalate	2000U
621-64-7 N-Nitroso-di-n-propylamine	2000U	208-96-8 Acenaphthylene	2000U
67-72-1 Hexachloroethane	2000U	99-09-2 3-Nitroaniline	9500U
98-95-3 Nitrobenzene	2000U	83-32-9 Acenaphthene	2000U
78-59-1 Isophorone	2000U	51-28-5 2,4-Dinitrophenol	9500U
88-75-5 2-Nitrophenol	2000U	100-02-7 4-Nitrophenol	9500U
105-67-9 2,4-Dimethylphenol	2000U	132-64-9 Dibenzofuran	2000U
65-85-0 Benzoic Acid	9500U	121-14-2 2,4-Dinitrotoluene	2000U
111-91-1 bis(2-Chloroethoxy)methane	2000U	606-20-2 2,6-Dinitrotoluene	2000U
120-83-2 2,4-Dichlorophenol	2000U	84-66-2 Diethylphthalate	2000 250-16 U
120-82-1 1,2,4-Trichlorobenzene	2000U	7005-72-3 4-Chlorophenyl-phenylether	2000U
91-20-3 Naphthalene	2000U	86-73-7 Fluorene	2000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

JS
 4/6/91

ANALIS ID: 901206-024
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10653
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-106
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 3.3
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 2.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	9500U	53-70-3	Dibenz(a,h)anthracene	2000U
534-52-1	4,6-Dinitro-2-methylphenol	9500U	191-24-2	Benzo(g,h,i)perylene	2000U
86-30-6	N-Nitrosodiphenylamine	2000U			
101-55-3	4-Bromophenyl-phenylether	2000U			
118-74-1	Hexachlorobenzene	2000U			
87-86-5	Pentachlorophenol	9500U			
85-01-8	Phenanthrene	2000U			
120-12-7	Anthracene	2000U			
84-74-2	Di-n-butylphthalate	2000 B U			
206-44-0	Fluoranthene	2000U			
129-00-0	Pyrene	2000U			
85-68-7	Butylbenzylphthalate	2000U			
91-94-1	3,3'-Dichlorobenzidine	3900U			
56-55-3	Benzo(a)anthracene	2000U			
117-81-7	bis(2-Ethylhexyl)phthalate	2500 B U			
218-01-9	Chrysene	2000U			
117-84-0	Di-n-octylphthalate	110 J			
205-99-2	Benzo(b)fluoranthene	2000U			
207-08-9	Benzo(k)fluoranthene	2000U			
50-32-8	Benzo(a)pyrene	280 J			
193-39-5	Indeno(1,2,3-cd)pyrene	320 J			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901206-024

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 2.0

% Moisture: not dec. 3.3 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-106

Customer: J. KESSNER/R. SHUCK

File ID: 10653

Date Received: 6-DEC-1990

Date Analyzed: 14-DEC-1990

Date Extracted: 12-DEC-1990

pH: _____

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 9

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.87	24000	JAB
2.	Unknown (Alkyl Hydrocarbon)	19.48	990	J
3.	Unknown	22.03	1200	J
4.	Unknown (Alkyl Hydrocarbon)	25.61	1180	JB
5. 849-99-0	Hexanedioic acid, dicyclohexyl	26.39	8100	J
6.	Unknown (Hydrocarbon)	26.49	930	JB
7.	Unknown (Hydrocarbon)	27.76	2600	J
8.	Unknown (Hydrocarbon)	29.59	1400	J
9.	Unknown	33.96	1300	J
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JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-024
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07608
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: M-106
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 3
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	10U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	10U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	10U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	10U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 2 U	108-10-1 4-Methyl-2-pentanone	10U
67-64-1 Acetone	10U	591-78-6 2-Hexanone	10U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	10U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	10U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-025
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10654
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-107
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.0
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	1000U	106-47-8	4-Chloroaniline	1000U
111-44-4	bis(2-Chloroethyl)ether	1000U	87-68-3	Hexachlorobutadiene	1000U
95-57-8	2-Chlorophenol	1000U	59-50-7	4-Chloro-3-methylphenol	1000U
541-73-1	1,3-Dichlorobenzene	1000U	91-57-6	2-Methylnaphthalene	1000U
106-46-7	1,4-Dichlorobenzene	1000U	77-47-4	Hexachlorocyclopentadiene	1000U
100-51-6	Benzyl Alcohol	1000U	88-06-2	2,4,6-Trichlorophenol	1000U
95-50-1	1,2-Dichlorobenzene	1000U	95-95-4	2,4,5-Trichlorophenol	4900U
95-48-7	2-Methylphenol	1000U	91-58-7	2-Chloronaphthalene	1000U
108-60-1	bis(2-Chloroisopropyl)ether	1000U	88-74-4	2-Nitroaniline	4900U
106-44-5	4-Methylphenol	1000U	131-11-3	Dimethylphthalate	1000U
621-64-7	N-Nitroso-di-n-propylamine	1000U	208-96-8	Acenaphthylene	1000U
67-72-1	Hexachloroethane	1000U	99-09-2	3-Nitroaniline	4900U
98-95-3	Nitrobenzene	1000U	83-32-9	Acenaphthene	1000U
78-59-1	Isophorone	1000U	51-28-5	2,4-Dinitrophenol	4900U
88-75-5	2-Nitrophenol	1000U	100-02-7	4-Nitrophenol	4900U
105-67-9	2,4-Dimethylphenol	1000U	132-64-9	Dibenzofuran	1000U
65-85-0	Benzoic Acid	1000 300-48 U	121-14-2	2,4-Dinitrotoluene	1000U
111-91-1	bis(2-Chloroethoxy)methane	1000U	606-20-2	2,6-Dinitrotoluene	1000U
120-83-2	2,4-Dichlorophenol	1000U	84-66-2	Diethylphthalate	1000 230-48 U
120-82-1	1,2,4-Trichlorobenzene	1000U	7005-72-3	4-Chlorophenyl-phenylether	1000U
91-20-3	Naphthalene	1000U	86-73-7	Fluorene	1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Handwritten signature
4/6/91

ANALIS ID: 901206-025
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10654
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-107
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990

Preparation Procedure Number:

Percent Moisture: 5.0

Percent Moisture (decanted):

Associated Blank: 901213-028

[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990

Analysis Procedure Number: BNA (CLP) NDP

Dilution Factor: 1.0

Analyst: C. MEEHAN

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4900U	53-70-3	Dibenz(a,h)anthracene	1000U
534-52-1	4,6-Dinitro-2-methylphenol	4900U	191-24-2	Benzo(g,h,i)perylene	1000U
86-30-6	N-Nitrosodiphenylamine	1000U			
101-55-3	4-Bromophenyl-phenylether	1000U			
118-74-1	Hexachlorobenzene	1000U			
87-86-5	Pentachlorophenol	4900U			
85-01-8	Phenanthrene	1000U			
120-12-7	Anthracene	1000U			
84-74-2	Di-n-butylphthalate	3300 B, U			
206-44-0	Fluoranthene	1000U			
129-00-0	Pyrene	91 J			
85-68-7	Butylbenzylphthalate	1000U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	430-18 1000 U			
218-01-9	Chrysene	1000U			
117-84-0	Di-n-octylphthalate	1000U			
205-99-2	Benzo(b)fluoranthene	1000U			
207-08-9	Benzo(k)fluoranthene	1000U			
50-32-8	Benzo(a)pyrene	1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	1000U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901206-025
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 5.0 dec.
Extraction: (SepF/Cont/Sonc) SoxH
GPC Cleanup: (Y/N) N

Customer Sample ID: N-107
Customer: J. KESSNER/R. SHUCK
File ID: 10654
Date Received: 6-DEC-1990
Date Analyzed: 14-DEC-1990
Date Extracted: 12-DEC-1990
pH:

Number TICs found: 15

Concentration Units
(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-Penten-2-one, 4-methyl-	4.94	450	JA
2. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	6.00	34000	JAB
3. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	16.44	430	JB
4.	Unknown (sat'd Hydrocarbon)	19.44	690	J
5. 17851-53-5	1,2-Benzenedicarboxylic acid,b	21.38	510	JB
6. 17851-53-5	1,2-Benzenedicarboxylic acid,b	21.79	740	JB
7.	Unknown (Alkyl Hydrocarbon)	22.73	410	JB
8.	Unknown (sat'd Hydrocarbon)	23.61	1300	JB
9.	Unknown	25.90	1000	J
10.	Unknown (Alkyl Hydrocarbon)	26.47	1200	JB
11.	Unknown	27.68	800	J
12.	Unknown (sat'd Hydrocarbon)	28.11	630	JB
13.	Unknown (Hydrocarbon)	30.53	430	J
14.	Unknown (Hydrocarbon)	32.59	450	J
15.	Unknown (Hydrocarbon)	33.43	1500	J
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JS
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-025
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07609
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-107
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 5
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL MUDDLESTON
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 → U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	11U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

JZ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

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ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901206-028
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07612
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: N-108
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 5
Percent Moisture (decanted):
Associated Blank: 901211-004
☐ : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: GL HUDDLESTON
QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 2+ U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	14 U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

JL
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-029
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10658
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: M-109
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 8.0
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
108-95-2 Phenol	980U	106-47-8 4-Chloroaniline	980U
111-44-4 bis(2-Chloroethyl)ether	980U	87-68-3 Hexachlorobutadiene	980U
95-57-8 2-Chlorophenol	980U	59-50-7 4-Chloro-3-methylphenol	980U
541-73-1 1,3-Dichlorobenzene	980U	91-57-6 2-Methylnaphthalene	980U
106-46-7 1,4-Dichlorobenzene	980U	77-47-4 Hexachlorocyclopentadiene	980U
100-51-6 Benzyl Alcohol	980U	88-06-2 2,4,6-Trichlorophenol	980U
95-50-1 1,2-Dichlorobenzene	980U	95-95-4 2,4,5-Trichlorophenol	4700U
95-48-7 2-Methylphenol	980U	91-58-7 2-Chloronaphthalene	980U
108-60-1 bis(2-Chloroisopropyl)ether	980U	88-74-4 2-Nitroaniline	4700U
106-44-5 4-Methylphenol	980U	131-11-3 Dimethylphthalate	980U
621-64-7 N-Nitroso-di-n-propylamine	980U	208-96-8 Acenaphthylene	980U
67-72-1 Hexachloroethane	980U	99-09-2 3-Nitroaniline	4700U
98-95-3 Nitrobenzene	980U	83-32-9 Acenaphthene	980U
78-59-1 Isophorone	980U	51-28-5 2,4-Dinitrophenol	4700U
88-75-5 2-Nitrophenol	980U	100-02-7 4-Nitrophenol	4700U
105-67-9 2,4-Dimethylphenol	980U	132-64-9 Dibenzofuran	980U
65-85-0 Benzoic Acid	980 - 250 - U	121-14-2 2,4-Dinitrotoluene	980U
111-91-1 bis(2-Chloroethoxy)methane	980U	606-20-2 2,6-Dinitrotoluene	980U
120-83-2 2,4-Dichlorophenol	980U	84-66-2 Diethylphthalate	980 - 470 - U
120-82-1 1,2,4-Trichlorobenzene	980U	7005-72-3 4-Chlorophenyl-phenylether	980U
91-20-3 Naphthalene	980U	86-73-7 Fluorene	980U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JJ
4/6/91

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 2 of 2

Analysis ID: 901206-029
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10658
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-109
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 8.0
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4700U	53-70-3	Dibenz(a,h)anthracene	980U
534-52-1	4,6-Dinitro-2-methylphenol	4700U	191-24-2	Benzo(g,h,i)perylene	980U
86-30-6	N-Nitrosodiphenylamine	980U			
101-55-3	4-Bromophenyl-phenylether	980U			
118-74-1	Hexachlorobenzene	980U			
87-86-5	Pentachlorophenol	4700U			
85-01-8	Phenanthrene	980U			
120-12-7	Anthracene	980U			
84-74-2	Di-n-butylphthalate	1700~B U			
206-44-0	Fluoranthene	980U			
129-00-0	Pyrene	980U			
85-68-7	Butylbenzylphthalate	980U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	980U			
117-81-7	bis(2-Ethylhexyl)phthalate	380-38- 980 U			
218-01-9	Chrysene	980U			
117-84-0	Di-n-octylphthalate	980U			
205-99-2	Benzo(b)fluoranthene	980U			
207-08-9	Benzo(k)fluoranthene	980U			
50-32-8	Benzo(a)pyrene	980U			
193-39-5	Indeno(1,2,3-cd)pyrene	980U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901206-029

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 8.0 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-109

Customer: J. KESSNER/R. SHUCK

File ID: 10658

Date Received: 6-DEC-1990

Date Analyzed: 14-DEC-1990

Date Extracted: 12-DEC-1990

pH: _____

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 14

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-Penten-2-one, 4-methyl-	4.93	1100	JA
2. 123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	6.39	140000	JA
3.	Unknown (Alkyl Hydrocarbon)	18.23	580	J
4.	Unknown (Alkyl Hydrocarbon)	18.78	600	J
5.	Unknown (Alkyl Hydrocarbon)	19.43	1800	J
6.	Unknown (Alkyl Hydrocarbon)	21.68	1100	JB
7.	Unknown (sat'd Hydrocarbon)	22.73	650	JB
8.	Unknown (sat'd Hydrocarbon)	25.60	800	JB
9.	Unknown	25.87	460	J
10.	Unknown (Alkyl Hydrocarbon)	26.48	800	JB
11.	Unknown	27.69	580	J
12.	Unknown (sat'd Hydrocarbon)	28.12	580	JB
13.	Unknown (Alkyl Hydrocarbon)	32.59	430	J
14.	Unknown (Hydrocarbon)	33.43	1200	J
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JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 1

Analysis ID: 901206-029
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07613
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: W-109
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 8
Percent Moisture (decanted):
Associated Blank: 901211-004
[] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: GL HUDDLESTON
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5 2+ U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	15 U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Handwritten: 12
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

Analysis ID: 901206-030
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10659
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-110
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 7.4
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	990U	106-47-8	4-Chloroaniline	990U
111-44-4	bis(2-Chloroethyl)ether	990U	87-68-3	Hexachlorobutadiene	990U
95-57-8	2-Chlorophenol	990U	59-50-7	4-Chloro-3-methylphenol	990U
541-73-1	1,3-Dichlorobenzene	990U	91-57-6	2-Methylnaphthalene	990U
106-46-7	1,4-Dichlorobenzene	990U	77-47-4	Hexachlorocyclopentadiene	990U
100-51-6	Benzyl Alcohol	990U	88-06-2	2,4,6-Trichlorophenol	990U
95-50-1	1,2-Dichlorobenzene	990U	95-95-4	2,4,5-Trichlorophenol	4800U
95-48-7	2-Methylphenol	990U	91-58-7	2-Chloronaphthalene	990U
108-60-1	bis(2-Chloroisopropyl)ether	990U	88-74-4	2-Nitroaniline	4800U
106-44-5	4-Methylphenol	990U	131-11-3	Dimethylphthalate	990U
621-64-7	N-Nitroso-di-n-propylamine	990U	208-96-8	Acenaphthylene	990U
67-72-1	Hexachloroethane	990U	99-09-2	3-Nitroaniline	4800U
98-95-3	Nitrobenzene	990U	83-32-9	Acenaphthene	990U
78-59-1	Isophorone	990U	51-28-5	2,4-Dinitrophenol	4800U
88-75-5	2-Nitrophenol	990U	100-02-7	4-Nitrophenol	4800U
105-67-9	2,4-Dimethylphenol	990U	132-64-9	Dibenzofuran	990U
65-85-0	Benzoic Acid	990 340-18 U	121-14-2	2,4-Dinitrotoluene	990U
111-91-1	bis(2-Chloroethoxy)methane	990U	606-20-2	2,6-Dinitrotoluene	990U
120-83-2	2,4-Dichlorophenol	990U	84-66-2	Diethylphthalate	990 200-18 U
120-82-1	1,2,4-Trichlorobenzene	990U	7005-72-3	4-Chlorophenyl-phenylether	990U
91-20-3	Naphthalene	990U	86-73-7	Fluorene	990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JS
4/6/91

AnalIS ID: 901206-030
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10659
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-110
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 7.4
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4800U	53-70-3	Dibenz(a,h)anthracene	990U
534-52-1	4,6-Dinitro-2-methylphenol	4800U	191-24-2	Benzo(g,h,i)perylene	990U
86-30-6	N-Nitrosodiphenylamine	990U			
101-55-3	4-Bromophenyl-phenylether	990U			
118-74-1	Hexachlorobenzene	990U			
87-86-5	Pentachlorophenol	4800U			
85-01-8	Phenanthrene	990U			
120-12-7	Anthracene	990U			
84-74-2	Di-n-butylphthalate	1800 B U			
206-44-0	Fluoranthene	990U			
129-00-0	Pyrene	990U			
85-68-7	Butylbenzylphthalate	990U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	990U			
117-81-7	bis(2-Ethylhexyl)phthalate	380-18 990 U			
218-01-9	Chrysene	990U			
117-84-0	Di-n-octylphthalate	990U			
205-99-2	Benzo(b)fluoranthene	990U			
207-08-9	Benzo(k)fluoranthene	990U			
50-32-8	Benzo(a)pyrene	990U			
193-39-5	Indeno(1,2,3-cd)pyrene	990U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-030

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 7.4 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-110

Customer: J. KESSNER/R. SHUCK

File ID: 10659

Date Received: 6-DEC-1990

Date Analyzed: 14-DEC-1990

Date Extracted: 12-DEC-1990

pH:

Number TICs found: 12

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-Penten-2-one, 4-methyl-	4.92	490	JA
2. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	6.00	3300000	JA
3. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.82	450	JB
4.	Unknown (sat'd Hydrocarbon)	19.43	660	J
5.	Unknown (sat'd Hydrocarbon)	25.01	860	JB
6.	Unknown (Hydrocarbon)	25.89	850	J
7.	Unknown (sat'd Hydrocarbon)	26.49	940	JB
8.	Unknown	27.67	1500	J
9.	Unknown (Hydrocarbon)	28.12	590	JB
10.	Unknown (Hydrocarbon)	30.53	410	J
11.	Unknown (Hydrocarbon)	32.60	420	J
12.	Unknown (Hydrocarbon)	33.45	1300	J
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JS
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 1

ANALIS ID: 901206-030
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07614
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-110
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 7
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL MUDDLESTON
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5 → U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	11U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry Department

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901206-030
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 7

Customer Sample ID: N-110
Customer: J. KESSNER/R. SHUCK
File ID: 07614
Date Received: 6-DEC-1990
Date Analyzed: 11-DEC-1990

Number TICs found: 1

Concentration Units
(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	Freon 113	9.25	6.1	J
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J
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-031
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10660
Instrument ID: 5970#3
Authorized By: D. C. Canada

Customer Sample ID: N-111
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
Preparation Procedure Number:
Percent Moisture: 6.1
Percent Moisture (decanted):
Associated Blank: 901213-028
[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	990U	106-47-8	4-Chloroaniline	990U
111-44-4	bis(2-Chloroethyl)ether	990U	87-68-3	Hexachlorobutadiene	990U
95-57-8	2-Chlorophenol	990U	59-50-7	4-Chloro-3-methylphenol	990U
541-73-1	1,3-Dichlorobenzene	990U	91-57-6	2-Methylnaphthalene	990U
106-46-7	1,4-Dichlorobenzene	990U	77-47-4	Hexachlorocyclopentadiene	990U
100-51-6	Benzyl Alcohol	990U	88-06-2	2,4,6-Trichlorophenol	990U
95-50-1	1,2-Dichlorobenzene	990U	95-95-4	2,4,5-Trichlorophenol	4800U
95-48-7	2-Methylphenol	990U	91-58-7	2-Chloronaphthalene	990U
108-60-1	bis(2-Chloroisopropyl)ether	990U	88-74-4	2-Nitroaniline	4800U
106-44-5	4-Methylphenol	990U	131-11-3	Dimethylphthalate	990U
621-64-7	N-Nitroso-di-n-propylamine	990U	208-96-8	Acenaphthylene	990U
67-72-1	Hexachloroethane	990U	99-09-2	3-Nitroaniline	4800U
98-95-3	Nitrobenzene	990U	83-32-9	Acenaphthene	990U
78-59-1	Isophorone	990U	51-28-5	2,4-Dinitrophenol	4800U
88-75-5	2-Nitrophenol	990U	100-02-7	4-Nitrophenol	4800U
105-67-9	2,4-Dimethylphenol	990U	132-64-9	Dibenzofuran	990U
65-85-0	Benzoic Acid	990 240-JB U	121-14-2	2,4-Dinitrotoluene	990U
111-91-1	bis(2-Chloroethoxy)methane	990U	606-20-2	2,6-Dinitrotoluene	990U
120-83-2	2,4-Dichlorophenol	990U	84-66-2	Diethylphthalate	990 230-JB U
120-82-1	1,2,4-Trichlorobenzene	990U	7005-72-3	4-Chlorophenyl-phenylether	990U
91-20-3	Naphthalene	990U	86-73-7	Fluorene	990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
4/6/91

AnalIS ID: 901206-031
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10660
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-111
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 6.1
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4800U	53-70-3	Dibenz(a,h)anthracene	990U
534-52-1	4,6-Dinitro-2-methylphenol	4800U	191-24-2	Benzo(g,h,i)perylene	990U
86-30-6	N-Nitrosodiphenylamine	990U			
101-55-3	4-Bromophenyl-phenylether	990U			
118-74-1	Hexachlorobenzene	990U			
87-86-5	Pentachlorophenol	4800U			
85-01-8	Phenanthrene	990U			
120-12-7	Anthracene	990U			
84-74-2	Di-n-butylphthalate	180-8 990 U			
206-44-0	Fluoranthene	990U			
129-00-0	Pyrene	990U			
85-68-7	Butylbenzylphthalate	990U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	990U			
117-81-7	bis(2-Ethylhexyl)phthalate	300-18 990 U			
218-01-9	Chrysene	990U			
117-84-0	Di-n-octylphthalate	990U			
205-99-2	Benzo(b)fluoranthene	990U			
207-08-9	Benzo(k)fluoranthene	990U			
50-32-8	Benzo(a)pyrene	990U			
193-39-5	Indeno(1,2,3-cd)pyrene	990U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

JL
 4/6/91

WIC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry DepartmentBNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901206-031

Laboratory: Organic Mass Spectroscopy LaboratorySample Matrix: SOILLevel: (low/med): LOWDilution Factor: 1.0% Moisture: not dec. 6.1 dec. Extraction: (SepF/Cont/Sonc) SoxHGPC Cleanup: (Y/N) NCustomer Sample ID: N-111Customer: J. KESSNER/R. SMUCKFile ID: 10660Date Received: 6-DEC-1990Date Analyzed: 14-DEC-1990Date Extracted: 12-DEC-1990pH:

Concentration Units

(ug/L or ug/Kg): ug/KgNumber TICs found: 15

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2 2-Pentanone, 4-hydroxy-4-methy	5.05	20000	JAB
2.	872-50-4 2-Pyrrolidinone, 1-methyl-	9.82	440	JB
3.	25013-16-5 Phenol, (1,1-dimethylethyl)-4-m	16.45	530	JB
4.	Unknown (sat'd Hydrocarbon)	19.42	830	J
5.	Unknown (Alkyl Hydrocarbon)	21.69	500	JB
6.	Unknown (sat'd Hydrocarbon)	22.73	410	J
7.	Unknown (Hydrocarbon)	23.74	500	JB
8.	Unknown (sat'd Hydrocarbon)	25.40	920	JB
9.	Unknown (Hydrocarbon)	25.89	850	J
10.	Unknown (sat'd Hydrocarbon)	26.48	800	JB
11.	Unknown	27.53	660	J
12.	Unknown (Hydrocarbon)	28.12	430	JB
13.	Unknown	29.39	470	J
14.	Unknown (sat'd Hydrocarbon)	32.59	420	J
15.	Unknown (Hydrocarbon)	33.51	1500	J
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
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30.				

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901206-031
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07615
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-111
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 6

Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5 2 U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	11U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

JF
 4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901206-032
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10661
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: M-112
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 4.3
 Percent Moisture (decanted):
 Associated Blank: 901213-028
☐ : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
108-95-2 Phenol	1000U	106-47-8 4-Chloroaniline	1000U
111-44-4 bis(2-Chloroethyl)ether	1000U	87-68-3 Hexachlorobutadiene	1000U
95-57-8 2-Chlorophenol	1000U	59-50-7 4-Chloro-3-methylphenol	1000U
541-73-1 1,3-Dichlorobenzene	1000U	91-57-6 2-Methylnaphthalene	1000U
106-46-7 1,4-Dichlorobenzene	1000U	77-47-4 Hexachlorocyclopentadiene	1000U
100-51-6 Benzyl Alcohol	1000U	88-06-2 2,4,6-Trichlorophenol	1000U
95-50-1 1,2-Dichlorobenzene	1000U	95-95-4 2,4,5-Trichlorophenol	5000U
95-48-7 2-Methylphenol	1000U	91-58-7 2-Chloronaphthalene	1000U
108-60-1 bis(2-Chloroisopropyl)ether	1000U	88-74-4 2-Nitroaniline	5000U
106-44-5 4-Methylphenol	1000U	131-11-3 Dimethylphthalate	1000U
621-64-7 N-Nitroso-di-n-propylamine	1000U	208-96-8 Acenaphthylene	1000U
67-72-1 Hexachloroethane	1000U	99-09-2 3-Nitroaniline	5000U
98-95-3 Nitrobenzene	1000U	83-32-9 Acenaphthene	1000U
78-59-1 Isophorone	1000U	51-28-5 2,4-Dinitrophenol	5000U
88-75-5 2-Nitrophenol	1000U	100-02-7 4-Nitrophenol	5000U
105-67-9 2,4-Dimethylphenol	1000U	132-64-9 Dibenzofuran	1000U
65-85-0 Benzoic Acid	1000 250-JB-LA	121-14-2 2,4-Dinitrotoluene	1000U
111-91-1 bis(2-Chloroethoxy)methane	1000U	606-20-2 2,6-Dinitrotoluene	1000U
120-83-2 2,4-Dichlorophenol	1000U	84-66-2 Diethylphthalate	1000 270-JB-LA
120-82-1 1,2,4-Trichlorobenzene	1000U	7005-72-3 4-Chlorophenyl-phenylether	1000U
91-20-3 Naphthalene	1000U	86-73-7 Fluorene	1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 2 of 2

ANALIS ID: 901206-032
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10661
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-112
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 4.3
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	5000U	53-70-3	Dibenz(a,h)anthracene	1000U
534-52-1	4,6-Dinitro-2-methylphenol	5000U	191-24-2	Benzo(g,h,i)perylene	1000U
86-30-6	N-Nitrosodiphenylamine	1000U			
101-55-3	4-Bromophenyl-phenylether	1000U			
118-74-1	Hexachlorobenzene	1000U			
87-86-5	Pentachlorophenol	5000U			
85-01-8	Phenanthrene	1000U			
120-12-7	Anthracene	1000U			
84-74-2	Di-n-butylphthalate	3500 B LA			
206-44-0	Fluoranthene	1000U			
129-00-0	Pyrene	1000U			
85-68-7	Butylbenzylphthalate	1000U			
91-94-1	3,3'-Dichlorobenzidine	2100U			
56-55-3	Benzo(a)anthracene	1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	430-48 1000U			
218-01-9	Chrysene	1000U			
117-84-0	Di-n-octylphthalate	99 J			
205-99-2	Benzo(b)fluoranthene	1000U			
207-08-9	Benzo(k)fluoranthene	1000U			
50-32-8	Benzo(a)pyrene	1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	1000U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JJ
 4/6/91

WHC-SD-EN-TI-136, Rev. 0
Oak Ridge K-25 Site
Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-032
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 4.3 dec.
Extraction: (SepF/Cont/Sonc) SoxH
GPC Cleanup: (Y/N) N

Customer Sample ID: N-112
Customer: J. KESSNER/R. SHUCK
File ID: 10661
Date Received: 6-DEC-1990
Date Analyzed: 14-DEC-1990
Date Extracted: 12-DEC-1990
pH:

Number TICs found: 16

Concentration Units
(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-Penten-2-one, 4-methyl-	4.92	430	JA
2. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.97	3100	JAB
3. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.82	550	JB
4. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	16.45	500	JB
5. 17851-53-5	1,2-Benzenedicarboxylic acid, b	21.30	700	JB
6.	Unknown (sat'd Hydrocarbon)	21.69	430	JB
7.	Unknown (Alkyl Hydrocarbon)	22.73	470	JB
8.	Unknown (Alkyl Hydrocarbon)	23.74	640	JB
9.	Unknown	24.00	440	J
10.	Unknown (sat'd Hydrocarbon)	25.60	1200	JB
11.	Unknown (Alkyl Hydrocarbon)	25.91	970	J
12. 123-79-5	Diethyl Adipate	26.40	2500	J
13.	Unknown (Alkyl Hydrocarbon)	26.48	1100	JB
14.	Unknown	27.71	1400	J
15.	Unknown (Hydrocarbon)	28.12	540	JB
16.	Unknown	33.57	1000	J
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

J
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-032
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07616
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-112
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 6
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	28 U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

JJ
 4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Analysis ID: 901206-033
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10662
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-113
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 3.8
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
108-95-2 Phenol	880U	106-47-8 4-Chloroaniline	880U
111-44-4 bis(2-Chloroethyl)ether	880U	87-68-3 Hexachlorobutadiene	880U
95-57-8 2-Chlorophenol	880U	59-50-7 4-Chloro-3-methylphenol	880U
541-73-1 1,3-Dichlorobenzene	880U	91-57-6 2-Methylnaphthalene	880U
106-46-7 1,4-Dichlorobenzene	880U	77-47-4 Hexachlorocyclopentadiene	880U
100-51-6 Benzyl Alcohol	880U	88-06-2 2,4,6-Trichlorophenol	880U
95-50-1 1,2-Dichlorobenzene	880U	95-95-4 2,4,5-Trichlorophenol	4300U
95-48-7 2-Methylphenol	880U	91-58-7 2-Chloronaphthalene	880U
108-60-1 bis(2-Chloroisopropyl)ether	880U	88-74-4 2-Nitroaniline	4300U
106-44-5 4-Methylphenol	880U	131-11-3 Dimethylphthalate	880U
621-64-7 N-Nitroso-di-n-propylamine	880U	208-96-8 Acenaphthylene	880U
67-72-1 Hexachloroethane	880U	99-09-2 3-Nitroaniline	4300U
98-95-3 Nitrobenzene	880U	83-32-9 Acenaphthene	880U
78-59-1 Isophorone	880U	51-28-5 2,4-Dinitrophenol	4300U
88-75-5 2-Nitrophenol	880U	100-02-7 4-Nitrophenol	4300U
105-67-9 2,4-Dimethylphenol	880U	132-64-9 Dibenzofuran	880U
65-85-0 Benzoic Acid	880-280-78 U	121-14-2 2,4-Dinitrotoluene	880U
111-91-1 bis(2-Chloroethoxy)methane	880U	606-20-2 2,6-Dinitrotoluene	880U
120-83-2 2,4-Dichlorophenol	880U	84-66-2 Diethylphthalate	880-460-78 U
120-82-1 1,2,4-Trichlorobenzene	880U	7005-72-3 4-Chlorophenyl-phenylether	880U
91-20-3 Naphthalene	880U	86-73-7 Fluorene	880U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
 4/6/91

ANALIS ID: 901206-033
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10662
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-113
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 3.8
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4300U	53-70-3	Dibenz(a,h)anthracene	880U
534-52-1	4,6-Dinitro-2-methylphenol	4300U	191-24-2	Benzo(g,h,i)perylene	880U
86-30-6	N-Nitrosodiphenylamine	880U			
101-55-3	4-Bromophenyl-phenylether	880U			
118-74-1	Hexachlorobenzene	880U			
87-86-5	Pentachlorophenol	4300U			
85-01-8	Phenanthrene	880U			
120-12-7	Anthracene	880U			
84-74-2	Di-n-butylphthalate	1600 B. U			
206-44-0	Fluoranthene	880U			
129-00-0	Pyrene	880U			
85-68-7	Butylbenzylphthalate	880U			
91-94-1	3,3'-Dichlorobenzidine	1800U			
56-55-3	Benzo(a)anthracene	880U			
117-81-7	bis(2-Ethylhexyl)phthalate	350-48 880 U			
218-01-9	Chrysene	880U			
117-84-0	Di-n-octylphthalate	880U			
205-99-2	Benzo(b)fluoranthene	880U			
207-08-9	Benzo(k)fluoranthene	880U			
50-32-8	Benzo(a)pyrene	880U			
193-39-5	Indeno(1,2,3-cd)pyrene	880U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JJ
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-033

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 3.8 dec. _____

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-113

Customer: J. KESSNER/R. SHUCK

File ID: 10662

Date Received: 6-DEC-1990

Date Analyzed: 14-DEC-1990

Date Extracted: 12-DEC-1990

pH: _____

Number TICs found: 13

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.96	38000	JAB
2. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	18.43	400	JB
3.	Unknown (Alkyl Hydrocarbon)	19.43	550	J
4.	Unknown (Alkyl Hydrocarbon)	21.60	380	JB
5. 17851-53-5	1,2-Benzenedicarboxylic acid, b	21.60	380	JB
6.	Unknown (Hydrocarbon)	23.59	750	JB
7.	Unknown (Hydrocarbon)	25.90	800	J
8.	Unknown (sat'd Hydrocarbon)	26.47	770	JB
9.	Unknown	27.68	1600	J
10.	Unknown (sat'd Hydrocarbon)	28.13	570	JB
11.	Unknown (Hydrocarbon)	30.54	370	J
12.	Unknown (Alkyl Hydrocarbon)	32.60	410	J
13.	Unknown (Alkyl Hydrocarbon)	33.46	1400	J
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JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901206-033
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07617
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: N-113
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 6
Percent Moisture (decanted):
Associated Blank: 901211-004
[] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: GL HUDDLESTON
QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	SU
74-83-9 Bromomethane	11U	71-43-2 Benzene	SU
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	SU
75-00-3 Chloroethane	11U	75-25-2 Bromoform	SU
75-09-2 Methylene Chloride	SU	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	32 U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	SU	127-18-4 Tetrachloroethene	SU
75-35-4 1,1-Dichloroethene	SU	79-34-5 1,1,2,2-Tetrachloroethane	SU
75-34-3 1,1-Dichloroethane	SU	108-88-3 Toluene	SU
540-59-0 1,2-Dichloroethene (total)	SU	108-90-7 Chlorobenzene	SU
67-66-3 Chloroform	SU	100-41-4 Ethylbenzene	SU
107-06-2 1,2-Dichloroethane	SU	100-42-5 Styrene	SU
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	SU
71-55-6 1,1,1-Trichloroethane	SU		
56-23-5 Carbon Tetrachloride	SU		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	SU		
78-87-5 1,2-Dichloropropane	SU		
10061-01-5 cis-1,3-Dichloropropene	SU		
79-01-6 Trichloroethene	SU		
124-48-1 Dibromochloromethane	SU		

JZ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 2

Analysis ID: 901206-034
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10663
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-114
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 3.3
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
108-95-2 Phenol	880U	106-47-8 4-Chloroaniline	880U
111-44-4 bis(2-Chloroethyl)ether	880U	87-68-3 Hexachlorobutadiene	880U
95-57-8 2-Chlorophenol	880U	59-50-7 4-Chloro-3-methylphenol	880U
541-73-1 1,3-Dichlorobenzene	880U	91-57-6 2-Methylnaphthalene	880U
106-46-7 1,4-Dichlorobenzene	880U	77-47-4 Hexachlorocyclopentadiene	880U
100-51-6 Benzyl Alcohol	880U	88-06-2 2,4,6-Trichlorophenol	880U
95-50-1 1,2-Dichlorobenzene	880U	95-95-4 2,4,5-Trichlorophenol	4200U
95-48-7 2-Methylphenol	880U	91-58-7 2-Chloronaphthalene	880U
108-60-1 bis(2-Chloroisopropyl)ether	880U	88-74-4 2-Nitroaniline	4200U
106-44-5 4-Methylphenol	880U	131-11-3 Dimethylphthalate	880U
621-64-7 N-Nitroso-di-n-propylamine	880U	208-96-8 Acenaphthylene	880U
67-72-1 Hexachloroethane	880U	99-09-2 3-Nitroaniline	4200U
98-95-3 Nitrobenzene	880U	83-32-9 Acenaphthene	880U
78-59-1 Isophorone	880U	51-28-5 2,4-Dinitrophenol	4200U
88-75-5 2-Nitrophenol	880U	100-02-7 4-Nitrophenol	4200U
105-67-9 2,4-Dimethylphenol	880U	132-64-9 Dibenzofuran	880U
65-85-0 Benzoic Acid	880 170-38 U	121-14-2 2,4-Dinitrotoluene	880U
111-91-1 bis(2-Chloroethoxy)methane	880U	606-20-2 2,6-Dinitrotoluene	880U
120-83-2 2,4-Dichlorophenol	880U	84-66-2 Diethylphthalate	880 250-38 U
120-82-1 1,2,4-Trichlorobenzene	880U	7005-72-3 4-Chlorophenyl-phenylether	880U
91-20-3 Naphthalene	880U	86-73-7 Fluorene	880U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.
- JZ*
12/16/91

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 2 of 2

Analysis ID: 901206-034
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10663
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-114
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 3.3
 Percent Moisture (decanted):
 Associated Blank: 901213-028
 [] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C. MEENAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4200U	53-70-3	Dibenz(a,h)anthracene	880U
534-52-1	4,6-Dinitro-2-methylphenol	4200U	191-24-2	Benzo(g,h,i)perylene	880U
86-30-6	N-Nitrosodiphenylamine	880U			
101-55-3	4-Bromophenyl-phenylether	880U			
118-74-1	Hexachlorobenzene	880U			
87-86-5	Pentachlorophenol	4200U			
85-01-8	Phenanthrene	880U			
120-12-7	Anthracene	880U			
84-74-2	Di-n-butylphthalate	2900 B U			
206-44-0	Fluoranthene	880U			
129-00-0	Pyrene	880U			
85-68-7	Butylbenzylphthalate	880U			
91-94-1	3,3'-Dichlorobenzidine	1800U			
56-55-3	Benzo(a)anthracene	880U			
117-81-7	bis(2-Ethylhexyl)phthalate	250-18 880 U			
218-01-9	Chrysene	880U			
117-84-0	Di-n-octylphthalate	880U			
205-99-2	Benzo(b)fluoranthene	880U			
207-08-9	Benzo(k)fluoranthene	880U			
50-32-8	Benzo(a)pyrene	880U			
193-39-5	Indeno(1,2,3-cd)pyrene	880U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

JZ
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-034

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 3.3 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-114

Customer: J. KESSNER/R. SHUCK

File ID: 10663

Date Received: 6-DEC-1990

Date Analyzed: 14-DEC-1990

Date Extracted: 12-DEC-1990

pH:

Number TICs found: 14

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.91	21000	JAB
2. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.81	480	JAB
3. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	16.44	440	JAB
4. 17851-53-5	1,2-Benzenedicarboxylic acid,b	21.29	520	JAB
5.	Unknown (sat'd Hydrocarbon)	21.68	390	JAB
6.	Unknown	21.93	370	J
7.	Unknown (Hydrocarbon)	22.72	390	JAB
8.	Unknown (Alkyl Hydrocarbon)	23.75	560	JAB
9.	Unknown (sat'd Hydrocarbon)	25.39	970	JAB
10.	Unknown	25.96	620	J
11.	Unknown (sat'd Hydrocarbon)	26.47	870	JAB
12.	Unknown	27.68	2800	J
13.	Unknown (Alkyl Hydrocarbon)	28.13	400	JAB
14.	Unknown	33.74	610	J
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JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901206-034
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07618
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: M-114
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 5
Percent Moisture (decanted):
Associated Blank: 901211-004
[] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: GL HUDDLESTON
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	12 U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropene	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not detected.
A - Aldol condensation product.
D - Secondary dilution.
E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 2

Analysis ID: 901206-035
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10664
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-115
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 4.8
 Percent Moisture (decanted):
 Associated Blank: 901213-028
☐ : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEEHAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	900U	106-47-8	4-Chloroaniline	900U
111-44-4	bis(2-Chloroethyl)ether	900U	87-68-3	Hexachlorobutadiene	900U
95-57-8	2-Chlorophenol	900U	59-50-7	4-Chloro-3-methylphenol	900U
541-73-1	1,3-Dichlorobenzene	900U	91-57-6	2-Methylnaphthalene	900U
106-46-7	1,4-Dichlorobenzene	900U	77-47-4	Hexachlorocyclopentadiene	900U
100-51-6	Benzyl Alcohol	900U	88-06-2	2,4,6-Trichlorophenol	900U
95-50-1	1,2-Dichlorobenzene	900U	95-95-4	2,4,5-Trichlorophenol	4300U
95-48-7	2-Methylphenol	900U	91-58-7	2-Chloronaphthalene	900U
108-60-1	bis(2-Chloroisopropyl)ether	900U	88-74-4	2-Nitroaniline	4300U
106-44-5	4-Methylphenol	900U	131-11-3	Dimethylphthalate	900U
621-64-7	N-Nitroso-di-n-propylamine	900U	208-96-8	Acenaphthylene	900U
67-72-1	Hexachloroethane	900U	99-09-2	3-Nitroaniline	4300U
98-95-3	Nitrobenzene	900U	83-32-9	Acenaphthene	900U
78-59-1	Isophorone	900U	51-28-5	2,4-Dinitrophenol	4300U
88-75-5	2-Nitrophenol	900U	100-02-7	4-Nitrophenol	4300U
105-67-9	2,4-Dimethylphenol	900U	132-64-9	Dibenzofuran	900U
65-85-0	Benzoic Acid	900 220-18 U	121-14-2	2,4-Dinitrotoluene	900U
111-91-1	bis(2-Chloroethoxy)methane	900U	606-20-2	2,6-Dinitrotoluene	900U
120-83-2	2,4-Dichlorophenol	900U	84-66-2	Diethylphthalate	900 220-18 U
120-82-1	1,2,4-Trichlorobenzene	900U	7005-72-3	4-Chlorophenyl-phenylether	900U
91-20-3	Naphthalene	900U	86-73-7	Fluorene	900U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 2 of 2

ANALIS ID: 901206-035
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10664
 Instrument ID: 5970#3
 Authorized By: D. C. Canada

Customer Sample ID: N-115
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 12-DEC-1990

Preparation Procedure Number:

Percent Moisture: 4.8

Percent Moisture (decanted):

Associated Blank: 901213-028

[] : Result has been Corrected for Spike

Date Analyzed: 14-DEC-1990

Analysis Procedure Number: BNA (CLP) NDP

Dilution Factor: 1.0

Analyst: C MEEHAN

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4300U	53-70-3	Dibenz(a,h)anthracene	900U
534-52-1	4,6-Dinitro-2-methylphenol	4300U	191-24-2	Benzo(g,h,i)perylene	900U
86-30-6	N-Nitrosodiphenylamine	900U			
101-55-3	4-Bromophenyl-phenylether	900U			
118-74-1	Hexachlorobenzene	900U			
87-86-5	Pentachlorophenol	4300U			
85-01-8	Phenanthrene	900U			
120-12-7	Anthracene	900U			
84-74-2	Di-n-butylphthalate	1700 B. U			
206-44-0	Fluoranthene	900U			
129-00-0	Pyrene	900U			
85-68-7	Butylbenzylphthalate	900U			
91-94-1	3,3'-Dichlorobenzidine	1800U			
56-55-3	Benzo(a)anthracene	900U			
117-81-7	bis(2-Ethylhexyl)phthalate	760-78 900U			
218-01-9	Chrysene	900U			
117-84-0	Di-n-octylphthalate	900U			
205-99-2	Benzo(b)fluoranthene	900U			
207-08-9	Benzo(k)fluoranthene	900U			
50-32-8	Benzo(a)pyrene	900U			
193-39-5	Indeno(1,2,3-cd)pyrene	900U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

JJ
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-035

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 4.8 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-115

Customer: J. KESSNER/R. SHUCK

File ID: 10664

Date Received: 6-DEC-1990

Date Analyzed: 14-DEC-1990

Date Extracted: 12-DEC-1990

pH:

Number TICs found: 14

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.97	37000	JAB
2. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.88	440	JB
3.	Unknown	12.52	600	J
4. 25013-16-5	Phenol, (1,1-dimethylethyl)-4-m	16.45	440	JB
5.	Unknown (Alkyl Hydrocarbon)	21.69	440	JB
6.	Unknown (Alkyl Hydrocarbon)	23.73	440	JB
7.	Unknown (sat'd Hydrocarbon)	25.60	780	JB
8. 17851-53-5	1,2-Benzenedicarboxylic acid, b	25.97	570	J
9. 123-79-5	Dioctyl Adipate	26.38	1600	J
10.	Unknown (sat'd Hydrocarbon)	26.48	780	JB
11.	Unknown	27.79	1700	J
12.	Unknown (Alkyl Hydrocarbon)	28.12	490	JB
13.	Unknown (sat'd Hydrocarbon)	32.59	390	J
14.	Unknown	33.73	380	J
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J
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-035
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07619
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-115
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 5
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	34 LA	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-036
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14465
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-116
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 6.3
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 990U	106-47-8	4-Chloroaniline	R 990U
111-44-4	bis(2-Chloroethyl)ether	R 990U	87-68-3	Hexachlorobutadiene	R 990U
95-57-8	2-Chlorophenol	R 990U	59-50-7	4-Chloro-3-methylphenol	R 990U
541-73-1	1,3-Dichlorobenzene	R 990U	91-57-6	2-Methylnaphthalene	R 990U
106-46-7	1,4-Dichlorobenzene	R 990U	77-47-4	Hexachlorocyclopentadiene	R 990U
100-51-6	Benzyl Alcohol	R 990U	88-06-2	2,4,6-Trichlorophenol	R 990U
95-50-1	1,2-Dichlorobenzene	R 990U	95-95-4	2,4,5-Trichlorophenol	R 4800U
95-48-7	2-Methylphenol	R 990U	91-58-7	2-Chloronaphthalene	R 990U
108-60-1	bis(2-Chloroisopropyl)ether	R 990U	88-74-4	2-Nitroaniline	R 4800U
106-44-5	4-Methylphenol	R 990U	131-11-3	Dimethylphthalate	R 990U
621-64-7	N-Nitroso-di-n-propylamine	R 990U	208-96-8	Acenaphthylene	R 990U
67-72-1	Hexachloroethane	R 990U	99-09-2	3-Nitroaniline	R 4800U
98-95-3	Nitrobenzene	R 990U	83-32-9	Acenaphthene	R 990U
78-59-1	Isophorone	R 990U	51-28-5	2,4-Dinitrophenol	R 4800U
88-75-5	2-Nitrophenol	R 990U	100-02-7	4-Nitrophenol	R 4800U
105-67-9	2,4-Dimethylphenol	R 990U	132-64-9	Dibenzofuran	R 990U
65-85-0	Benzoic Acid	R 4800U	121-14-2	2,4-Dinitrotoluene	R 990U
111-91-1	bis(2-Chloroethoxy)methane	R 990U	606-20-2	2,6-Dinitrotoluene	R 990U
120-83-2	2,4-Dichlorophenol	R 990U	84-66-2	Diethylphthalate	R 990U
120-82-1	1,2,4-Trichlorobenzene	R 990U	7005-72-3	4-Chlorophenyl-phenylether	R 990U
91-20-3	Naphthalene	R 990U	86-73-7	Fluorene	R 990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901206-036
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14465
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-116
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 6.3
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 4800U	53-70-3	Dibenz(a,h)anthracene	R 990U
534-52-1	4,6-Dinitro-2-methylphenol	R 4800U	191-24-2	Benzo(g,h,i)perylene	R 990U
86-30-6	N-Nitrosodiphenylamine	R 990U			
101-55-3	4-Bromophenyl-phenylether	R 990U			
118-74-1	Hexachlorobenzene	R 990U			
87-86-5	Pentachlorophenol	R 4800U			
85-01-8	Phenanthrene	R 990U			
120-12-7	Anthracene	R 990U			
84-74-2	Di-n-butylphthalate	2900 B U			
206-44-0	Fluoranthene	R 990U			
129-00-0	Pyrene	R 990U			
85-68-7	Butylbenzylphthalate	R 990U			
91-94-1	3,3'-Dichlorobenzidine	R 2100U			
56-55-3	Benzo(a)anthracene	R 990U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 990U			
218-01-9	Chrysene	R 990U			
117-84-0	Di-n-octylphthalate	R 990U			
205-99-2	Benzo(b)fluoranthene	R 990U			
207-08-9	Benzo(k)fluoranthene	R 990U			
50-32-8	Benzo(a)pyrene	R 990U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 990U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JZ 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-036

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 6.3 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: M-116

Customer: J. KESSNER/R. SHUCK

File ID: >14465

Date Received: 5-DEC-1990

Date Analyzed: 2-JAN-1991

Date Extracted: 13-DEC-1990

pH:

Number TICs found: 18

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.69	14000	JAB
2.	UNKNOWN	6.06	420	J
3.	UNKNOWN ALCOHOL	6.34	540	JB
4.	UNKNOWN ALCOHOL	13.88	3800	JB
5.	UNKNOWN	17.28	460	JB
6.	UNKNOWN	20.91	8900	JB
7.	UNKNOWN HYDROCARBON	23.78	710	JB
8.	UNKNOWN HYDROCARBON	23.98	570	JB
9.	UNKNOWN PHTHALATE ESTER	24.60	780	JB
10.	UNKNOWN	24.84	840	J
11.	UNKNOWN HYDRICARBON	25.10	890	JB
12.	UNKNOWN HYDROCARBON	26.38	730	JB
13.	UNKNOWN HYDROCARBON	27.56	1000	JB
14.	UNKNOWN HYDROCARBON	28.71	2800	JB
15.	UNKNOWN HYDROCARBON	29.82	2500	JB
16.	UNKNOWN HYDROCARBON	30.87	2200	JB
17.	UNKNOWN ALKOXY COMPOUND	31.80	1900	JB
18.	UNKNOWN HYDROCARBON	31.87	1400	JB
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
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30.				

JZ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

AnalIS ID: 901206-036
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07586
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-116
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 6
 Percent Moisture (decanted):
 Associated Blank: 901210-025
 [] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: SL STAFFORD
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 3-8 U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	11U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

J
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901206-036

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 6

Customer Sample ID: N-116

Customer: J. KESSNER/R. SHUCK

File ID: 07586

Date Received: 5-DEC-1990

Date Analyzed: 10-DEC-1990

Number TICs found: 1

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	Freon 113	5.18	6	JJB
2.				
3.				
4.				
5.				
6.				
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JZ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-037
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14466
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-117
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 6.5
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 990U	106-47-8	4-Chloroaniline	R 990U
111-44-4	bis(2-Chloroethyl)ether	R 990U	87-68-3	Hexachlorobutadiene	R 990U
95-57-8	2-Chlorophenol	R 990U	59-50-7	4-Chloro-3-methylphenol	R 990U
541-73-1	1,3-Dichlorobenzene	R 990U	91-57-6	2-Methylnaphthalene	R 990U
106-46-7	1,4-Dichlorobenzene	R 990U	77-47-4	Hexachlorocyclopentadiene	R 990U
100-51-6	Benzyl Alcohol	R 990U	88-06-2	2,4,6-Trichlorophenol	R 990U
95-50-1	1,2-Dichlorobenzene	R 990U	95-95-4	2,4,5-Trichlorophenol	R 4800U
95-48-7	2-Methylphenol	R 990U	91-58-7	2-Chloronaphthalene	R 990U
108-60-1	bis(2-Chloroisopropyl)ether	R 990U	88-74-4	2-Nitroaniline	R 4800U
106-44-5	4-Methylphenol	R 990U	131-11-3	Dimethylphthalate	R 990U
621-64-7	N-Nitroso-di-n-propylamine	R 990U	208-96-8	Acenaphthylene	R 990U
67-72-1	Hexachloroethane	R 990U	99-09-2	3-Nitroaniline	R 4800U
98-95-3	Nitrobenzene	R 990U	83-32-9	Acenaphthene	R 990U
78-59-1	Isophorone	R 990U	51-28-5	2,4-Dinitrophenol	R 4800U
88-75-5	2-Nitrophenol	R 990U	100-02-7	4-Nitrophenol	R 4800U
105-67-9	2,4-Dimethylphenol	R 990U	132-64-9	Dibenzofuran	R 990U
65-85-0	Benzoic Acid	R 4800U	121-14-2	2,4-Dinitrotoluene	R 990U
111-91-1	bis(2-Chloroethoxy)methane	R 990U	606-20-2	2,6-Dinitrotoluene	R 990U
120-83-2	2,4-Dichlorophenol	R 990U	84-66-2	Diethylphthalate	R 990U
120-82-1	1,2,4-Trichlorobenzene	R 990U	7005-72-3	4-Chlorophenyl-phenylether	R 990U
91-20-3	Naphthalene	R 990U	86-73-7	Fluorene	R 990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 2 of 2

ANALIS ID: 901206-037
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14466
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-117
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990

Preparation Procedure Number:

Percent Moisture: 6.5

Percent Moisture (decanted):

Associated Blank: 901214-083

[] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991

Analysis Procedure Number: BNA (CLP) NBP

Dilution Factor: 1.0

Analyst: AK HEADRICK

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 4800U	53-70-3	Dibenz(a,h)anthracene	R 990U
534-52-1	4,6-Dinitro-2-methylphenol	R 4800U	191-24-2	Benzo(g,h,i)perylene	R 990U
86-30-6	N-Nitrosodiphenylamine	R 990U			
101-55-3	4-Bromophenyl-phenylether	R 990U			
118-74-1	Hexachlorobenzene	R 990U			
87-86-5	Pentachlorophenol	R 4800U			
85-01-8	Phenanthrene	R 990U			
120-12-7	Anthracene	R 990U			
84-74-2	Di-n-butylphthalate	1400 ^B U			
206-44-0	Fluoranthene	R 990U			
129-00-0	Pyrene	R 990U			
85-68-7	Butylbenzylphthalate	R 990U			
91-94-1	3,3'-Dichlorobenzidine	R 2000U			
56-55-3	Benzo(a)anthracene	R 990U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 990U			
218-01-9	Chrysene	R 990U			
117-84-0	Di-n-octylphthalate	R 990U			
205-99-2	Benzo(b)fluoranthene	R 990U			
207-08-9	Benzo(k)fluoranthene	R 990U			
50-32-8	Benzo(a)pyrene	R 990U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 990U			

JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-037
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 6.5 dec.
Extraction: (SepF/Cont/Sonc) SoxH
GPC Cleanup: (Y/N) N

Customer Sample ID: N-117
Customer: J. KESSNER/R. SHUCK
File ID: >14466
Date Received: 5-DEC-1990
Date Analyzed: 2-JAN-1991
Date Extracted: 13-DEC-1990
pH:

Number TICs found: 18

Concentration Units
(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.70	17000	JAB
2.	UNKNOWN	6.06	430	J
3.	UNKNOWN ALCOHOL	6.34	600	JB
4.	UNKNOWN ALCOHOL	13.01	2000	JB
5.	UNKNOWN	17.30	510	JB
6.	UNKNOWN	20.04	5800	JB
7.	UNKNOWN HYDROCARBON	23.79	790	JB
8.	UNKNOWN HYDROCARBON	23.92	440	JB
9.	UNKNOWN PHTHALATE ESTER	24.70	410	JB
10.	UNKNOWN HYDROCARBON	24.87	750	J
11.	UNKNOWN HYDROCARBON	25.12	730	JB
12.	UNKNOWN HYDROCARBON	26.36	560	JB
13.	UNKNOWN HYDROCARBON	27.59	1200	JB
14.	UNKNOWN HYDROCARBON	28.74	1700	JB
15.	UNKNOWN HYDROCARBON	29.83	1500	JB
16.	UNKNOWN HYDROCARBON	30.89	1400	JB
17.	UNKNOWN ALKOXY COMPOUND	31.85	1000	JB
18.	UNKNOWN HYDROCARBON	31.90	1200	JB
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 1

Analysis ID: 901206-037
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07587
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-117
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 7
 Percent Moisture (decanted):
 Associated Blank: 901210-025
 [] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: SL STAFFORD
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 11 U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	11 11 U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

JJ
 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-037

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 7

Customer Sample ID: N-117

Customer: J. KESSNER/R. SHUCK

File ID: 07587

Date Received: 5-DEC-1990

Date Analyzed: 10-DEC-1990

Number TICs found: 1

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	Freon 113	-5.18	6	JVB
2.				
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JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-038
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14467
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-118
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 7.1
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 1000U	106-47-8	4-Chloroaniline	R 1000U
111-44-4	bis(2-Chloroethyl)ether	R 1000U	87-68-3	Hexachlorobutadiene	R 1000U
95-57-8	2-Chlorophenol	R 1000U	59-50-7	4-Chloro-3-methylphenol	R 1000U
541-73-1	1,3-Dichlorobenzene	R 1000U	91-57-6	2-Methylnaphthalene	R 1000U
106-46-7	1,4-Dichlorobenzene	R 1000U	77-47-4	Hexachlorocyclopentadiene	R 1000U
100-51-6	Benzyl Alcohol	R 1000U	88-06-2	2,4,6-Trichlorophenol	R 1000U
95-50-1	1,2-Dichlorobenzene	R 1000U	95-95-4	2,4,5-Trichlorophenol	R 5100U
95-48-7	2-Methylphenol	R 1000U	91-58-7	2-Chloronaphthalene	R 1000U
108-60-1	bis(2-Chloroisopropyl)ether	R 1000U	88-74-4	2-Nitroaniline	R 5100U
106-44-5	4-Methylphenol	R 1000U	131-11-3	Dimethylphthalate	R 1000U
621-64-7	N-Nitroso-di-n-propylamine	R 1000U	208-96-8	Acenaphthylene	R 1000U
67-72-1	Hexachloroethane	R 1000U	99-09-2	3-Nitroaniline	R 5100U
98-95-3	Nitrobenzene	R 1000U	83-32-9	Acenaphthene	R 1000U
78-59-1	Isophorone	R 1000U	51-28-5	2,4-Dinitrophenol	R 5100U
88-75-5	2-Nitrophenol	R 1000U	100-02-7	4-Nitrophenol	R 5100U
105-67-9	2,4-Dimethylphenol	R 1000U	132-64-9	Dibenzofuran	R 1000U
65-85-0	Benzoic Acid	R 5100U	121-14-2	2,4-Dinitrotoluene	R 1000U
111-91-1	bis(2-Chloroethoxy)methane	R 1000U	606-20-2	2,6-Dinitrotoluene	R 1000U
120-83-2	2,4-Dichlorophenol	R 1000U	84-66-2	Diethylphthalate	R 1000U
120-82-1	1,2,4-Trichlorobenzene	R 1000U	7005-72-3	4-Chlorophenyl-phenylether	R 1000U
91-20-3	Naphthalene	R 1000U	86-73-7	Fluorene	R 1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901206-038
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14467
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-118
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 7.1
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 5100U	53-70-3	Dibenz(a,h)anthracene	R 1000U
534-52-1	4,6-Dinitro-2-methylphenol	R 5100U	191-24-2	Benzo(g,h,i)perylene	R 1000U
86-30-6	N-Nitrosodiphenylamine	R 1000U			
101-55-3	4-Bromophenyl-phenylether	R 1000U			
118-74-1	Hexachlorobenzene	R 1000U			
87-86-5	Pentachlorophenol	R 5100U			
85-01-8	Phenanthrene	R 1000U			
120-12-7	Anthracene	R 1000U			
84-74-2	Di-n-butylphthalate	1400 ^{ug} _g A			
206-44-0	Fluoranthene	R 1000U			
129-00-0	Pyrene	R 1000U			
85-68-7	Butylbenzylphthalate	R 1000U			
91-94-1	3,3'-Dichlorobenzidine	R 2100U			
56-55-3	Benzo(a)anthracene	R 1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 1000U			
218-01-9	Chrysene	R 1000U			
117-84-0	Di-n-octylphthalate	R 1000U			
205-99-2	Benzo(b)fluoranthene	R 1000U			
207-08-9	Benzo(k)fluoranthene	R 1000U			
50-32-8	Benzo(a)pyrene	R 1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 1000U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF 4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-038
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 7.1 dec.
Extraction: (SepF/Cont/Sonc) SoxH
GPC Cleanup: (Y/N) N

Customer Sample ID: N-118
Customer: J. KESSNER/R. SHUCK
File ID: >14467
Date Received: 5-DEC-1990
Date Analyzed: 2-JAN-1991
Date Extracted: 13-DEC-1990
pH:

Number TICs found: 17

Concentration Units
(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.69	17000	JAB
2.	UNKNOWN	6.05	500	J
3.	UNKNOWN ALCOHOL	6.33	710	JB
4.	UNKNOWN ALCOHOL	13.88	3000	J
5.	UNKNOWN	17.26	480	JB
6.	UNKNOWN	20.91	6500	JB
7.	UNKNOWN HYDROCARBON	23.76	750	JB
8.	UNKNOWN HYDROCARBON	23.90	490	JB
9.	UNKNOWN	24.84	460	J
10.	UNKNOWN HYDROCARBON	25.09	750	JB
11.	UNKNOWN HYDROCARBON	26.35	520	JB
12.	UNKNOWN HYDROCARBON	27.56	1200	JB
13.	UNKNOWN HYDROCARBON	28.71	1900	JB
14.	UNKNOWN HYDROCARBON	29.80	1800	JB
15.	UNKNOWN HYDROCARBON	30.86	1700	JB
16.	UNKNOWN ALKOXY COMPOUND	31.80	2000	JB
17.	UNKNOWN PHTHALATE ESTER	32.37	1100	J
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Handwritten: 17
1/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

AnalIS ID: 901206-038
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07588
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-118
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 7
 Percent Moisture (decanted):
 Associated Blank: 901210-025
 [] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: SL STAFFORD
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5 11U U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	11U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry Department

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-038

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 7

Customer Sample ID: N-118

Customer: J. KESSNER/R. SHUCK

File ID: 07588

Date Received: 5-DEC-1990

Date Analyzed: 10-DEC-1990

Number TICs found: 1

Concentration Units

(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	18.67	6	JJ
2.				
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Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-041
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14470
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-119
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 6.5
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 1000U	106-47-8	4-Chloroaniline	R 1000U
111-44-4	bis(2-Chloroethyl)ether	R 1000U	87-68-3	Hexachlorobutadiene	R 1000U
95-57-8	2-Chlorophenol	R 1000U	59-50-7	4-Chloro-3-methylphenol	R 1000U
541-73-1	1,3-Dichlorobenzene	R 1000U	91-57-6	2-Methylnaphthalene	R 1000U
106-46-7	1,4-Dichlorobenzene	R 1000U	77-47-4	Hexachlorocyclopentadiene	R 1000U
100-51-6	Benzyl Alcohol	R 1000U	88-06-2	2,4,6-Trichlorophenol	R 1000U
95-50-1	1,2-Dichlorobenzene	R 1000U	95-95-4	2,4,5-Trichlorophenol	R 5100U
95-48-7	2-Methylphenol	R 1000U	91-58-7	2-Chloronaphthalene	R 1000U
108-60-1	bis(2-Chloroisopropyl)ether	R 1000U	88-74-4	2-Nitroaniline	R 5100U
106-44-5	4-Methylphenol	R 1000U	131-11-3	Dimethylphthalate	R 1000U
621-64-7	N-Nitroso-di-n-propylamine	R 1000U	208-96-8	Acenaphthylene	R 1000U
67-72-1	Hexachloroethane	R 1000U	99-09-2	3-Nitroaniline	R 5100U
98-95-3	Nitrobenzene	R 1000U	83-32-9	Acenaphthene	R 1000U
78-59-1	Isophorone	R 1000U	51-28-5	2,4-Dinitrophenol	R 5100U
88-75-5	2-Nitrophenol	R 1000U	100-02-7	4-Nitrophenol	R 5100U
105-67-9	2,4-Dimethylphenol	R 1000U	132-64-9	Dibenzofuran	R 1000U
65-85-0	Benzoic Acid	R 5100U	121-14-2	2,4-Dinitrotoluene	R 1000U
111-91-1	bis(2-Chloroethoxy)methane	R 1000U	606-20-2	2,6-Dinitrotoluene	R 1000U
120-83-2	2,4-Dichlorophenol	R 1000U	84-66-2	Diethylphthalate	R 1000U
120-82-1	1,2,4-Trichlorobenzene	R 1000U	7005-72-3	4-Chlorophenyl-phenylether	R 1000U
91-20-3	Naphthalene	R 1000U	86-73-7	Fluorene	R 1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 2 of 2

Analysis ID: 901206-041
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14470
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: N-119
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
Preparation Procedure Number:
Percent Moisture: 6.5
Percent Moisture (decanted):
Associated Blank: 901214-083
[] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: AK HEADRICK
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 5100U	53-70-3	Dibenz(a,h)anthracene	R 1000U
534-52-1	4,6-Dinitro-2-methylphenol	R 5100U	191-24-2	Benzo(g,h,i)perylene	R 1000U
86-30-6	N-Nitrosodiphenylamine	R 1000U			
101-55-3	4-Bromophenyl-phenylether	R 1000U			
118-74-1	Hexachlorobenzene	R 1000U			
87-86-5	Pentachlorophenol	R 5100U			
85-01-8	Phenanthrene	R 1000U			
120-12-7	Anthracene	R 1000U			
84-74-2	Di-n-butylphthalate	4800 U U			
206-44-0	Fluoranthene	R 1000U			
129-00-0	Pyrene	R 1000U			
85-68-7	Butylbenzylphthalate	R 1000U			
91-94-1	3,3'-Dichlorobenzidine	R 2100U			
56-55-3	Benzo(a)anthracene	R 1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 1000U			
218-01-9	Chrysene	R 1000U			
117-84-0	Di-n-octylphthalate	R 1000U			
205-99-2	Benzo(b)fluoranthene	R 1000U			
207-08-9	Benzo(k)fluoranthene	R 1000U			
50-32-8	Benzo(a)pyrene	R 1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 1000U			

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDSAnalIS ID: 901206-041Laboratory: Organic Mass Spectroscopy LaboratorySample Matrix: SOILLevel: (low/med): LOWDilution Factor: 1.0% Moisture: not dec. 6.5 dec. Extraction: (SepF/Cont/Sonc) SoxHGPC Cleanup: (Y/N) NCustomer Sample ID: N-119Customer: J. KESSNER/R. SHUCKFile ID: >14470Date Received: 5-DEC-1990Date Analyzed: 2-JAN-1991Date Extracted: 13-DEC-1990pH:

Concentration Units

(ug/L or ug/Kg): ug/KgNumber TICs found: 19

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.39	490	J
2.	123-42-2 2-Pentanone, 4-hydroxy-4-methy	5.77	32000	JAB
3.	UNKNOWN	8.31	580	J
4.	UNKNOWN	10.71	910	J
5.	UNKNOWN ALCOHOL	13.94	10000	JB
6.	UNKNOWN ACID	15.58	460	J
7.	UNKNOWN	20.95	18000	JB
8.	UNKNOWN PHTHALATE ESTER	24.72	980	JB
9.	UNKNOWN	24.86	940	J
10.	UNKNOWN HYDROCARBON	25.12	630	JB
11.	UNKNOWN HYDROCARBON	26.38	810	JB
12.	UNKNOWN HYDROCARBON	27.59	2700	JB
13.	UNKNOWN HYDROCARBON	28.74	4300	JB
14.	UNKNOWN HYDROCARBON	29.84	3700	JB
15.	UNKNOWN HYDROCARBON	30.89	2900	JB
16.	UNKNOWN	31.82	3300	JB
17.	UNKNOWN HYDROCARBON	31.89	1000	JB
18.	UNKNOWN HYDROCARBON	32.88	1100	J
19.	UNKNOWN ALKOXY COMPOUND	37.26	1200	J
20.				
21.				
22.				
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JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901206-041
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07591
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: N-119
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 7
Percent Moisture (decanted):
Associated Blank: 901210-025
[] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: SL STAFFORD
QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 2-UB U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	11 B U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

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ANALYSIS DATA REPORT

Page 1 of 2

Analysis ID: 901206-042
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14471
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: N-120
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990

Preparation Procedure Number:

Percent Moisture: 5.6

Percent Moisture (decanted):

Associated Blank: 901214-083

[] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991

Analysis Procedure Number: BNA (CLP) NDP

Dilution Factor: 1.0

Analyst: AK HEADRICK

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 990U	106-47-8	4-Chloroaniline	R 990U
111-44-4	bis(2-Chloroethyl)ether	R 990U	87-68-3	Hexachlorobutadiene	R 990U
95-57-8	2-Chlorophenol	R 990U	59-50-7	4-Chloro-3-methylphenol	R 990U
541-73-1	1,3-Dichlorobenzene	R 990U	91-57-6	2-Methylnaphthalene	R 990U
106-46-7	1,4-Dichlorobenzene	R 990U	77-47-4	Hexachlorocyclopentadiene	R 990U
100-51-6	Benzyl Alcohol	R 990U	88-06-2	2,4,6-Trichlorophenol	R 990U
95-50-1	1,2-Dichlorobenzene	R 990U	95-95-4	2,4,5-Trichlorophenol	R 4800U
95-48-7	2-Methylphenol	R 990U	91-58-7	2-Chloronaphthalene	R 990U
108-60-1	bis(2-Chloroisopropyl)ether	R 990U	88-74-4	2-Nitroaniline	R 4800U
106-44-5	4-Methylphenol	R 990U	131-11-3	Dimethylphthalate	R 990U
621-64-7	N-Nitroso-di-n-propylamine	R 990U	208-96-8	Acenaphthylene	R 990U
67-72-1	Hexachloroethane	R 990U	99-09-2	3-Nitroaniline	R 4800U
98-95-3	Nitrobenzene	R 990U	83-32-9	Acenaphthene	R 990U
78-59-1	Isophorone	R 990U	51-28-5	2,4-Dinitrophenol	R 4800U
88-75-5	2-Nitrophenol	R 990U	100-02-7	4-Nitrophenol	R 4800U
105-67-9	2,4-Dimethylphenol	R 990U	132-64-9	Dibenzofuran	R 990U
65-85-0	Benzoic Acid	R 4800U	121-14-2	2,4-Dinitrotoluene	R 990U
111-91-1	bis(2-Chloroethoxy)methane	R 990U	606-20-2	2,6-Dinitrotoluene	R 990U
120-83-2	2,4-Dichlorophenol	R 990U	84-66-2	Diethylphthalate	R 990U
120-82-1	1,2,4-Trichlorobenzene	R 990U	7005-72-3	4-Chlorophenyl-phenylether	R 990U
91-20-3	Naphthalene	R 990U	86-73-7	Fluorene	R 990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 2 of 2

Analysis ID: 901206-042
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14471
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: M-120
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.6
Percent Moisture (decanted):
Associated Blank: 901214-083
[] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: AK HEADRICK
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 4800U	53-70-3	Dibenz(a,h)anthracene	R 990U
534-52-1	4,6-Dinitro-2-methylphenol	R 4800U	191-24-2	Benzo(g,h,i)perylene	R 990U
86-30-6	N-Nitrosodiphenylamine	R 990U			
101-55-3	4-Bromophenyl-phenylether	R 990U			
118-74-1	Hexachlorobenzene	R 990U			
87-86-5	Pentachlorophenol	R 4800U			
85-01-8	Phenanthrene	R 990U			
120-12-7	Anthracene	R 990U			
84-74-2	Di-n-butylphthalate	3000 B U			
206-44-0	Fluoranthene	R 990U			
129-00-0	Pyrene	R 990U			
85-68-7	Butylbenzylphthalate	R 990U			
91-94-1	3,3'-Dichlorobenzidine	R 2000U			
56-55-3	Benzo(a)anthracene	R 990U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 990U			
218-01-9	Chrysene	R 990U			
117-84-0	Di-n-octylphthalate	R 990U			
205-99-2	Benzo(b)fluoranthene	R 990U			
207-08-9	Benzo(k)fluoranthene	R 990U			
50-32-8	Benzo(a)pyrene	R 990U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 990U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JF 4/6/91

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 2

ANALIS ID: 901206-043
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14472
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-121
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990

Preparation Procedure Number:

Percent Moisture: 5.5

Percent Moisture (decanted):

Associated Blank: 901214-083

[] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991

Analysis Procedure Number: BNA (CLP) NDP

Dilution Factor: 1.0

Analyst: AK HEADRICK

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 980U	106-47-8	4-Chloroaniline	R 980U
111-44-4	bis(2-Chloroethyl)ether	R 980U	87-68-3	Hexachlorobutadiene	R 980U
95-57-8	2-Chlorophenol	R 980U	59-50-7	4-Chloro-3-methylphenol	R 980U
541-73-1	1,3-Dichlorobenzene	R 980U	91-57-6	2-Methylnaphthalene	R 980U
106-46-7	1,4-Dichlorobenzene	R 980U	77-47-4	Hexachlorocyclopentadiene	R 980U
100-51-6	Benzyl Alcohol	R 980U	88-06-2	2,4,6-Trichlorophenol	R 980U
95-50-1	1,2-Dichlorobenzene	R 980U	95-95-4	2,4,5-Trichlorophenol	R 4800U
95-48-7	2-Methylphenol	R 980U	91-58-7	2-Chloronaphthalene	R 980U
108-60-1	bis(2-Chloroisopropyl)ether	R 980U	88-74-4	2-Nitroaniline	R 4800U
106-44-5	4-Methylphenol	R 980U	131-11-3	Dimethylphthalate	R 980U
621-64-7	N-Nitroso-di-n-propylamine	R 980U	208-96-8	Acenaphthylene	R 980U
67-72-1	Hexachloroethane	R 980U	99-09-2	3-Nitroaniline	R 4800U
98-95-3	Nitrobenzene	R 980U	83-32-9	Acenaphthene	R 980U
78-59-1	Isophorone	R 980U	51-28-5	2,4-Dinitrophenol	R 4800U
88-75-5	2-Nitrophenol	R 980U	100-02-7	4-Nitrophenol	R 4800U
105-67-9	2,4-Dimethylphenol	R 980U	132-64-9	Dibenzofuran	R 980U
65-85-0	Benzoic Acid	R 4800U	121-14-2	2,4-Dinitrotoluene	R 980U
111-91-1	bis(2-Chloroethoxy)methane	R 980U	606-20-2	2,6-Dinitrotoluene	R 980U
120-83-2	2,4-Dichlorophenol	R 980U	84-66-2	Diethylphthalate	R 980U
120-82-1	1,2,4-Trichlorobenzene	R 980U	7005-72-3	4-Chlorophenyl-phenylether	R 980U
91-20-3	Naphthalene	R 980U	86-73-7	Fluorene	R 980U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
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- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
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WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 2 of 2

Analysis ID: 901206-043
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14472
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: N-121
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
Preparation Procedure Number:
Percent Moisture: 5.5
Percent Moisture (decanted):
Associated Blank: 901214-083
[] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: AK HEADRICK
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 4800U	53-70-3	Dibenz(a,h)anthracene	R 980U
534-52-1	4,6-Dinitro-2-methylphenol	R 4800U	191-24-2	Benzo(g,h,i)perylene	R 980U
86-30-6	N-Nitrosodiphenylamine	R 980U			
101-55-3	4-Bromophenyl-phenylether	R 980U			
118-74-1	Hexachlorobenzene	R 980U			
87-86-5	Pentachlorophenol	R 4800U			
85-01-8	Phenanthrene	R 980U			
120-12-7	Anthracene	R 980U			
84-74-2	Di-n-butylphthalate	4300 R U			
206-44-0	Fluoranthene	R 980U			
129-00-0	Pyrene	R 980U			
85-68-7	Butylbenzylphthalate	R 980U			
91-94-1	3,3'-Dichlorobenzidine	R 2000U			
56-55-3	Benzo(a)anthracene	R 980U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 980U			
218-01-9	Chrysene	R 980U			
117-84-0	Di-n-octylphthalate	R 980U			
205-99-2	Benzo(b)fluoranthene	R 980U			
207-08-9	Benzo(k)fluoranthene	R 980U			
50-32-8	Benzo(a)pyrene	R 980U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 980U			

JZ
4/6/91

Data Reporting Qualifiers:

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- ND - Not detected.
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- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-043

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 5.5 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-121

Customer: J. KESSNER/R. SHUCK

File ID: >14472

Date Received: 5-DEC-1990

Date Analyzed: 2-JAN-1991

Date Extracted: 13-DEC-1990

pH:

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 19

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.75	30000	JAB
2.	UNKNOWN ALCOHOL	13.88	2300	JB
3.	UNKNOWN	16.90	2300	JB
4.	UNKNOWN	17.28	3300	JB
5.	UNKNOWN	19.69	17000	JB
6.	UNKNOWN	20.90	8000	JB
7.	UNKNOWN PHTHALATE ESTER	24.68	840	JB
8.	UNKNOWN ALKOXY COMPOUND	24.84	980	J
9.	UNKNOWN HYDROCARBON	25.09	700	JB
10.	ANTHRACENEDIONE	26.85	11000	JB
11.	UNKNOWN HYDROCARBON	26.36	770	JB
12.	UNKNOWN HYDROCARBON	27.55	1000	JB
13.	UNKNOWN HYDROCARBON	28.71	2000	JB
14.	UNKNOWN HYDROCARBON	29.68	1200	JB
15.	UNKNOWN HYDROCARBON	29.80	2300	J
16.	UNKNOWN HYDROCARBON	30.86	1800	JB
17.	UNKNOWN HYDROCARBON	31.80	7000	JB
18.	UNKNOWN HYDROCARBON	31.86	1100	JB
19.	UNKNOWN ALKOXY COMPOUND	37.24	2600	J
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 1

AnalIS ID: 901206-043
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07593
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: W-121
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 6
Percent Moisture (decanted):
Associated Blank: 901210-025
[] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: SL STAFFORD
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5 2-8 U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	21-8 U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

J2
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not detected.
A - Aldol condensation product.
D - Secondary dilution.
E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 2

ANALIS ID: 901206-044
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14473
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-122
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 5.9
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS			ug/Kg	CAS			ug/Kg
108-95-2	Phenol	R	990U	106-47-8	4-Chloroaniline	R	990U
111-44-4	bis(2-Chloroethyl)ether	R	990U	87-68-3	Hexachlorobutadiene	R	990U
95-57-8	2-Chlorophenol	R	990U	59-50-7	4-Chloro-3-methylphenol	R	990U
541-73-1	1,3-Dichlorobenzene	R	990U	91-57-6	2-Methylnaphthalene	R	990U
106-46-7	1,4-Dichlorobenzene	R	990U	77-47-4	Hexachlorocyclopentadiene	R	990U
100-51-6	Benzyl Alcohol	R	990U	88-06-2	2,4,6-Trichlorophenol	R	990U
95-50-1	1,2-Dichlorobenzene	R	990U	95-95-4	2,4,5-Trichlorophenol	R	4800U
95-48-7	2-Methylphenol	R	990U	91-58-7	2-Chloronaphthalene	R	990U
108-60-1	bis(2-Chloroisopropyl)ether	R	990U	88-74-4	2-Nitroaniline	R	4800U
106-44-5	4-Methylphenol	R	990U	131-11-3	Dimethylphthalate	R	990U
621-64-7	N-Nitroso-di-n-propylamine	R	990U	208-96-8	Acenaphthylene	R	990U
67-72-1	Hexachloroethane	R	990U	99-09-2	3-Nitroaniline	R	4800U
98-95-3	Nitrobenzene	R	990U	83-32-9	Acenaphthene	R	990U
78-59-1	Isophorone	R	990U	51-28-5	2,4-Dinitrophenol	R	4800U
88-75-5	2-Nitrophenol	R	990U	100-02-7	4-Nitrophenol	R	4800U
105-67-9	2,4-Dimethylphenol	R	990U	132-64-9	Dibenzofuran	R	990U
65-85-0	Benzoic Acid	R	4800U	121-14-2	2,4-Dinitrotoluene	R	990U
111-91-1	bis(2-Chloroethoxy)methane	R	990U	606-20-2	2,6-Dinitrotoluene	R	990U
120-83-2	2,4-Dichlorophenol	R	990U	84-66-2	Diethylphthalate	R	990U
120-82-1	1,2,4-Trichlorobenzene	R	990U	7005-72-3	4-Chlorophenyl-phenylether	R	990U
91-20-3	Naphthalene	R	990U	86-73-7	Fluorene	R	990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901206-044
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14473
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-122
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 5.9
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 4800U	53-70-3	Dibenz(a,h)anthracene	R 990U
534-52-1	4,6-Dinitro-2-methylphenol	R 4800U	191-24-2	Benzo(g,h,i)perylene	R 990U
86-30-6	N-Nitrosodiphenylamine	R 990U			
101-55-3	4-Bromophenyl-phenylether	R 990U			
118-74-1	Hexachlorobenzene	R 990U			
87-86-5	Pentachlorophenol	R 4800U			
85-01-8	Phenanthrene	R 990U			
120-12-7	Anthracene	R 990U			
84-74-2	Di-n-butylphthalate	7100B u			
206-44-0	Fluoranthene	R 990U			
129-00-0	Pyrene	R 990U			
85-68-7	Butylbenzylphthalate	R 990U			
91-94-1	3,3'-Dichlorobenzidine	R 2000U			
56-55-3	Benzo(a)anthracene	R 990U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 990U			
218-01-9	Chrysene	R 990U			
117-84-0	Di-n-octylphthalate	R 990U			
205-99-2	Benzo(b)fluoranthene	R 990U			
207-08-9	Benzo(k)fluoranthene	R 990U			
50-32-8	Benzo(a)pyrene	R 990U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 990U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS

TENTATIVELY IDENTIFIED COMPOUNDS

AnalS ID: 901206-044

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 5.9 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-122

Customer: J. KESSNER/R. SHUCK

File ID: >14473

Date Received: 5-DEC-1990

Date Analyzed: 2-JAN-1991

Date Extracted: 13-DEC-1990

pH:

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.69	19000	JAB
2.	UNKNOWN	8.28	650	J
3.	UNKNOWN ALCOHOL	13.90	5300	JB
4.	UNKNOWN ACID	15.61	460	J
5.	UNKNOWN	16.90	1900	JB
6.	UNKNOWN	17.28	2200	JB
7.	UNKNOWN	19.74	24000	JB
8.	UNKNOWN	20.90	10000	JB
9.	UNKNOWN PHTHALATE ESTER	24.60	1100	JB
10.	UNKNOWN HYDROCARBON	24.83	3400	J
11.	UNKNOWN HYDROCARBON	25.09	710	JB
12.	ANTHRACENEDIONE	26.05	9800	JB
13.	UNKNOWN HYDROCARBON	26.35	810	JB
14.	UNKNOWN HYDROCARBON	27.33	2700	JB
15.	UNKNOWN HYDROCARBON	28.70	3700	JB
16.	UNKNOWN	29.67	2000	JB
17.	UNKNOWN HYDROCARBON	29.81	3000	JB
18.	UNKNOWN HYDROCARBON	30.85	2400	JB
19.	UNKNOWN HYDROCARBON	31.79	6800	JB
20.	UNKNOWN HYDROCARBON	31.87	1900	JB
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901206-044
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07605
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-122
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 6
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL MUDDLESTON
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	11U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	11U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	11U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	11U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5U	108-10-1	4-Methyl-2-pentanone	11U
67-64-1	Acetone	11U	591-78-6	2-Hexanone	11U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	11U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	11U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901206-045
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14474
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-123
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 8.5
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 1000U	106-47-8	4-Chloroaniline	R 1000U
111-44-4	bis(2-Chloroethyl)ether	R 1000U	87-68-3	Hexachlorobutadiene	R 1000U
95-57-8	2-Chlorophenol	R 1000U	59-50-7	4-Chloro-3-methylphenol	R 1000U
541-73-1	1,3-Dichlorobenzene	R 1000U	91-57-6	2-Methylnaphthalene	R 1000U
106-46-7	1,4-Dichlorobenzene	R 1000U	77-47-4	Hexachlorocyclopentadiene	R 1000U
100-51-6	Benzyl Alcohol	R 1000U	88-06-2	2,4,6-Trichlorophenol	R 1000U
95-50-1	1,2-Dichlorobenzene	R 1000U	95-95-4	2,4,5-Trichlorophenol	R 5200U
95-48-7	2-Methylphenol	R 1000U	91-58-7	2-Chloronaphthalene	R 1000U
108-60-1	bis(2-Chloroisopropyl)ether	R 1000U	88-74-4	2-Nitroaniline	R 5200U
106-44-5	4-Methylphenol	R 1000U	131-11-3	Dimethylphthalate	R 1000U
621-64-7	N-Nitroso-di-n-propylamine	R 1000U	208-96-8	Acenaphthylene	R 1000U
67-72-1	Hexachloroethane	R 1000U	99-09-2	3-Nitroaniline	R 5200U
98-95-3	Nitrobenzene	R 1000U	83-32-9	Acenaphthene	R 1000U
78-59-1	Isophorone	R 1000U	51-28-5	2,4-Dinitrophenol	R 5200U
88-75-5	2-Nitrophenol	R 1000U	100-02-7	4-Nitrophenol	R 5200U
105-67-9	2,4-Dimethylphenol	R 1000U	132-64-9	Dibenzofuran	R 1000U
65-85-0	Benzoic Acid	R 5200U	121-14-2	2,4-Dinitrotoluene	R 1000U
111-91-1	bis(2-Chloroethoxy)methane	R 1000U	606-20-2	2,6-Dinitrotoluene	R 1000U
120-83-2	2,4-Dichlorophenol	R 1000U	84-66-2	Diethylphthalate	R 1000U
120-82-1	1,2,4-Trichlorobenzene	R 1000U	7005-72-3	4-Chlorophenyl-phenylether	R 1000U
91-20-3	Naphthalene	R 1000U	86-73-7	Fluorene	R 1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Analysis ID: 901206-045
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14474
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-123
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 8.5
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 5200U	53-70-3	Dibenz(a,h)anthracene	R 1000U
534-52-1	4,6-Dinitro-2-methylphenol	R 5200U	191-24-2	Benzo(g,h,i)perylene	R 1000U
86-30-6	N-Nitrosodiphenylamine	R 1000U			
101-55-3	4-Bromophenyl-phenylether	R 1000U			
118-74-1	Hexachlorobenzene	R 1000U			
87-86-5	Pentachlorophenol	R 5200U			
85-01-8	Phenanthrene	R 1000U			
120-12-7	Anthracene	R 1000U			
84-74-2	Di-n-butylphthalate	3300 B U			
206-44-0	Fluoranthene	R 1000U			
129-00-0	Pyrene	R 1000U			
85-68-7	Butylbenzylphthalate	R 1000U			
91-94-1	3,3'-Dichlorobenzidine	R 2100U			
56-55-3	Benzo(a)anthracene	R 1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 1000U			
218-01-9	Chrysene	R 1000U			
117-84-0	Di-n-octylphthalate	R 1000U			
205-99-2	Benzo(b)fluoranthene	R 1000U			
207-08-9	Benzo(k)fluoranthene	R 1000U			
50-32-8	Benzo(a)pyrene	R 1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 1000U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS

TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-045

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 8.5 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-123

Customer: J. KESSNER/R. SHUCK

File ID: >14474

Date Received: 5-DEC-1990

Date Analyzed: 2-JAN-1991

Date Extracted: 13-DEC-1990

pH:

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.65	14000	JAB
2.	UNKNOWN	5.72	950	J
3.	UNKNOWN ALCOHOL	13.87	1500	JB
4.	UNKNOWN	16.90	3100	JB
5.	UNKNOWN	17.28	3700	JB
6.	UNKNOWN	19.70	14000	JB
7.	UNKNOWN	20.90	6300	JB
8.	UNKNOWN HYDROCARBON	23.77	730	JB
9.	UNKNOWN PHTHALATE ESTER	24.68	700	JB
10.	UNKNOWN AKLOXY COMPOUND	24.83	1200	J
11.	UNKNOWN HYDROCARBON	25.09	990	JB
12.	ANTHRACECDIONE	26.05	12000	JB
13.	UNKNOWN HYDROCARBON	26.35	930	JB
14.	UNKNOWN HYDROCARBON	27.33	2400	JB
15.	UNKNOWN HYDROCARBON	28.70	3600	JB
16.	UNKNOWN ALKOXY COMPOUND	29.69	1800	JB
17.	UNKNOWN HYDROCARBON	29.81	2900	J
18.	UNKNOWN HYDROCARBON	30.83	2600	JB
19.	UNKNOWN HYDROCARBON	31.79	7000	JB
20.	UNKNOWN HYDROCARBON	31.87	2000	JB
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

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ANALYSIS DATA REPORT

Page 1 of 1

Analysis ID: 901206-045
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07595
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: M-123
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 9
 Percent Moisture (decanted):
 Associated Blank: 901210-025
 [] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: SL STAFFORD
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 2-8- U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	17 8- U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 901206-046
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14475
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-124
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 7.1
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 1000U	106-47-8	4-Chloroaniline	R 1000U
111-44-4	bis(2-Chloroethyl)ether	R 1000U	87-68-3	Hexachlorobutadiene	R 1000U
95-57-8	2-Chlorophenol	R 1000U	59-50-7	4-Chloro-3-methylphenol	R 1000U
541-73-1	1,3-Dichlorobenzene	R 1000U	91-57-6	2-Methylnaphthalene	R 1000U
106-46-7	1,4-Dichlorobenzene	R 1000U	77-47-4	Hexachlorocyclopentadiene	R 1000U
100-51-6	Benzyl Alcohol	R 1000U	88-06-2	2,4,6-Trichlorophenol	R 1000U
95-50-1	1,2-Dichlorobenzene	R 1000U	95-95-4	2,4,5-Trichlorophenol	R 4800U
95-48-7	2-Methylphenol	R 1000U	91-58-7	2-Chloronaphthalene	R 1000U
108-60-1	bis(2-Chloroisopropyl)ether	R 1000U	88-74-4	2-Nitroaniline	R 4800U
106-44-5	4-Methylphenol	R 1000U	131-11-3	Dimethylphthalate	R 1000U
621-64-7	N-Nitroso-di-n-propylamine	R 1000U	208-96-8	Acenaphthylene	R 1000U
67-72-1	Hexachloroethane	R 1000U	99-09-2	3-Nitroaniline	R 4800U
98-95-3	Nitrobenzene	R 1000U	83-32-9	Acenaphthene	R 1000U
78-59-1	Isophorone	R 1000U	51-28-5	2,4-Dinitrophenol	R 4800U
88-75-5	2-Nitrophenol	R 1000U	100-02-7	4-Nitrophenol	R 4800U
105-67-9	2,4-Dimethylphenol	R 1000U	132-64-9	Dibenzofuran	R 1000U
65-85-0	Benzoic Acid	R 4800U	121-14-2	2,4-Dinitrotoluene	R 1000U
111-91-1	bis(2-Chloroethoxy)methane	R 1000U	606-20-2	2,6-Dinitrotoluene	R 1000U
120-83-2	2,4-Dichlorophenol	R 1000U	84-66-2	Diethylphthalate	R 1000U
120-82-1	1,2,4-Trichlorobenzene	R 1000U	7005-72-3	4-Chlorophenyl-phenylether	R 1000U
91-20-3	Naphthalene	R 1000U	86-73-7	Fluorene	R 1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

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ANALYSIS DATA REPORT

Page 2 of 2

AnalIS ID: 901206-046
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14475
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: W-124
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
Preparation Procedure Number:
Percent Moisture: 7.1
Percent Moisture (decanted):
Associated Blank: 901214-083
[] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: AK HEADRICK
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 4800U	53-70-3	Dibenz(a,h)anthracene	R 1000U
534-52-1	4,6-Dinitro-2-methylphenol	R 4800U	191-24-2	Benzo(g,h,i)perylene	R 1000U
86-30-6	N-Nitrosodiphenylamine	R 1000U			
101-55-3	4-Bromophenyl-phenylether	R 1000U			
118-74-1	Hexachlorobenzene	R 1000U			
87-86-5	Pentachlorophenol	R 4800U			
85-01-8	Phenanthrene	R 1000U			
120-12-7	Anthracene	R 1000U			
84-74-2	Di-n-butylphthalate	3700B U			
206-44-0	Fluoranthene	R 1000U			
129-00-0	Pyrene	R 1000U			
85-68-7	Butylbenzylphthalate	R 1000U			
91-94-1	3,3'-Dichlorobenzidine	R 2000U			
56-55-3	Benzo(a)anthracene	R 1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 1000U			
218-01-9	Chrysene	R 1000U			
117-84-0	Di-n-octylphthalate	R 1000U			
205-99-2	Benzo(b)fluoranthene	R 1000U			
207-08-9	Benzo(k)fluoranthene	R 1000U			
50-32-8	Benzo(a)pyrene	R 1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 1000U			

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHIC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site
Analytical Chemistry DepartmentBNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-046

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 7.1 dec. _____

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-124

Customer: J. KESSNER/R. SHUCK

File ID: >14475

Date Received: 5-DEC-1990

Date Analyzed: 2-JAN-1991

Date Extracted: 13-DEC-1990

pH: _____

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.70	10000	JAB
2.	UNKNOWN ALCOHOL	6.33	600	JB
3.	UNKNOWN ALCOHOL	13.88	1000	JB
4.	UNKNOWN	16.91	2000	JB
5.	UNKNOWN	17.20	3000	JB
6.	UNKNOWN	19.70	17000	JB
7.	UNKNOWN	20.09	7500	JB
8.	UNKNOWN HYDROCARBON	23.78	650	JB
9.	UNKNOWN PHTHALATE ESTER	24.67	740	JB
10.	UNKNOWN HYDROCARBON	24.84	1500	J
11.	UNKNOWN HYDROCARBON	25.09	800	JB
12.	ANTHRACEDIONE	26.06	11000	JB
13.	UNKNOWN HYDROCARBON	26.35	830	JB
14.	UNKNOWN HYDROCARBON	27.56	1000	JB
15.	UNKNOWN HYDROCARBON	28.71	2700	JB
16.	UNKNOWN ALKOXY COMPOUND	29.68	1300	JB
17.	UNKNOWN HYDROCARBON	29.80	2100	J
18.	UNKNOWN HYDROCARBON	30.86	1500	JB
19.	UNKNOWN HYDROCARBON	31.80	6500	JB
20.	UNKNOWN ALKOXY COMPOUND	37.26	1200	J
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

J2
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

Analysis ID: 901206-046
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07596
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-124
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 7
 Percent Moisture (decanted):
 Associated Blank: 901210-025
 [] : Result has been Corrected for Spike

Date Analyzed: 10-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: SL STAFFORD
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 2 18 U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	25 8 U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		


 4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901206-047
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14476
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: N-125
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 6.5
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	R 1000U	106-47-8	4-Chloroaniline	R 1000U
111-44-4	bis(2-Chloroethyl)ether	R 1000U	87-68-3	Hexachlorobutadiene	R 1000U
95-57-8	2-Chlorophenol	R 1000U	59-50-7	4-Chloro-3-methylphenol	R 1000U
541-73-1	1,3-Dichlorobenzene	R 1000U	91-57-6	2-Methylnaphthalene	R 1000U
106-46-7	1,4-Dichlorobenzene	R 1000U	77-47-4	Hexachlorocyclopentadiene	R 1000U
100-51-6	Benzyl Alcohol	R 1000U	88-06-2	2,4,6-Trichlorophenol	R 1000U
95-50-1	1,2-Dichlorobenzene	R 1000U	95-95-4	2,4,5-Trichlorophenol	R 5100U
95-48-7	2-Methylphenol	R 1000U	91-58-7	2-Chloronaphthalene	R 1000U
108-60-1	bis(2-Chloroisopropyl)ether	R 1000U	88-74-4	2-Nitroaniline	R 5100U
106-44-5	4-Methylphenol	R 1000U	131-11-3	Dimethylphthalate	R 1000U
621-64-7	N-Nitroso-di-n-propylamine	R 1000U	208-96-8	Acenaphthylene	R 1000U
67-72-1	Hexachloroethane	R 1000U	99-09-2	3-Nitroaniline	R 5100U
98-95-3	Nitrobenzene	R 1000U	83-32-9	Acenaphthene	R 1000U
78-59-1	Isophorone	R 1000U	51-28-5	2,4-Dinitrophenol	R 5100U
88-75-5	2-Nitrophenol	R 1000U	100-02-7	4-Nitrophenol	R 5100U
105-67-9	2,4-Dimethylphenol	R 1000U	132-64-9	Dibenzofuran	R 1000U
65-85-0	Benzoic Acid	R 5100U	121-14-2	2,4-Dinitrotoluene	R 1000U
111-91-1	bis(2-Chloroethoxy)methane	R 1000U	606-20-2	2,6-Dinitrotoluene	R 1000U
120-83-2	2,4-Dichlorophenol	R 1000U	84-66-2	Diethylphthalate	R 1000U
120-82-1	1,2,4-Trichlorobenzene	R 1000U	7005-72-3	4-Chlorophenyl-phenylether	R 1000U
91-20-3	Naphthalene	R 1000U	86-73-7	Fluorene	R 1000U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901206-047
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >14476
 Instrument ID: HP-5985
 Authorized By: D. C. Canada

Customer Sample ID: M-125
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
 Preparation Procedure Number:
 Percent Moisture: 6.5
 Percent Moisture (decanted):
 Associated Blank: 901214-083
 [] : Result has been Corrected for Spike

Date Analyzed: 2-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: AK HEADRICK
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	R 5100U	53-70-3	Dibenz(a,h)anthracene	R 1000U
534-52-1	4,6-Dinitro-2-methylphenol	R 5100U	191-24-2	Benzo(g,h,i)perylene	R 1000U
86-30-6	N-Nitrosodiphenylamine	R 1000U			
101-55-3	4-Bromophenyl-phenylether	R 1000U			
118-74-1	Hexachlorobenzene	R 1000U			
87-86-5	Pentachlorophenol	R 5100U			
85-01-8	Phenanthrene	2200			
120-12-7	Anthracene	R 1000U			
84-74-2	Di-n-butylphthalate	5600 B, CA			
206-44-0	Fluoranthene	R 1000U			
129-00-0	Pyrene	R 1000U			
85-68-7	Butylbenzylphthalate	R 1000U			
91-94-1	3,3'-Dichlorobenzidine	R 2100U			
56-55-3	Benzo(a)anthracene	R 1000U			
117-81-7	bis(2-Ethylhexyl)phthalate	R 1000U			
218-01-9	Chrysene	R 1000U			
117-84-0	Di-n-octylphthalate	R 1000U			
205-99-2	Benzo(b)fluoranthene	R 1000U			
207-08-9	Benzo(k)fluoranthene	R 1000U			
50-32-8	Benzo(a)pyrene	R 1000U			
193-39-5	Indeno(1,2,3-cd)pyrene	R 1000U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901206-047

Laboratory: Organic Mass Spectroscopy LaboratorySample Matrix: SOILLevel: (low/med): LOWDilution Factor: 1.0% Moisture: not dec. 6.5 dec. Extraction: (SepF/Cont/Sonc) SoxHGPC Cleanup: (Y/N) NCustomer Sample ID: N-125Customer: J. KESSNER/R. SHUCKFile ID: >14476Date Received: 5-DEC-1990Date Analyzed: 2-JAN-1991Date Extracted: 13-DEC-1990pH:

Concentration Units

(ug/L or ug/Kg): ug/KgNumber TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.78	43000	JAB
2.	UNKNOWN HYDROCARBON	14.12	12000	J
3.	UNKNOWN HYDROCARBON	16.03	23000	J
4.	UNKNOWN HYDROCARBON	17.38	7000	JB
5.	UNKNOWN HYDROCARBON	17.81	22000	J
6.	UNKNOWN HYDROCARBON	18.56	8500	J
7.	UNKNOWN HYDROCARBON	18.82	12000	J
8.	UNKNOWN HYDROCARBON	19.46	28000	J
9.	UNKNOWN	19.74	22000	J
10.	UNKNOWN HYDROCARBON	20.41	8200	J
11.	UNKNOWN	20.94	15000	JB
12.	UNKNOWN HYDROCARBON	20.98	17000	J
13.	UNKNOWN HYDROCARBON	21.70	25000	J
14.	UNKNOWN HYDROCARBON	22.46	42000	J
15.	UNKNOWN HYDROCARBON	22.55	23000	J
16.	UNKNOWN HYDROCARBON	23.84	34000	JB
17.	UNKNOWN HYDROCARBON	23.96	18000	J
18.	UNKNOWN HYDROCARBON	25.15	20000	JB
19.	UNKNOWN HYDROCARBON	26.40	23000	JB
20.	UNKNOWN HYDROCARBON	27.58	26000	JB
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 1

Analysis ID: 901206-047
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07620
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-125
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 7
 Percent Moisture (decanted):
 Associated Blank: 901211-004
 [] : Result has been Corrected for Spike

Date Analyzed: 11-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5U	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	11U	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-047

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 7

Customer Sample ID: N-125

Customer: J. KESSNER/R. SHUCK

File ID: 07620

Date Received: 6-DEC-1990

Date Analyzed: 11-DEC-1990

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. <u>76-13-1</u>	<u>Freon 113</u>	<u>5.20</u>	<u>5</u>	<u>J</u>
2.				
3.				
4.				
5.				
6.				
7.				
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9.				
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11.				
12.				
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26.				
27.				
28.				
29.				
30.				

JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

AnalIS ID: 901206-049
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14511
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: N-126
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
Preparation Procedure Number:
Percent Moisture: 8.3
Percent Moisture (decanted):
Associated Blank: 901214-083
[] : Result has been Corrected for Spike

Date Analyzed: 17-JAN-1990
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: AK HEADRICK
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	1100U J	106-47-8	4-Chloroaniline	1100U J
111-44-4	bis(2-Chloroethyl)ether	1100U J	87-68-3	Hexachlorobutadiene	1100U J
95-57-8	2-Chlorophenol	1100U J	59-50-7	4-Chloro-3-methylphenol	1100U J
541-73-1	1,3-Dichlorobenzene	1100U J	91-57-6	2-Methylnaphthalene	1100U J
106-46-7	1,4-Dichlorobenzene	1100U J	77-47-4	Hexachlorocyclopentadiene	1100U J
100-51-6	Benzyl Alcohol	1100U J	88-06-2	2,4,6-Trichlorophenol	1100U J
95-50-1	1,2-Dichlorobenzene	1100U J	95-95-4	2,4,5-Trichlorophenol	5200U J
95-48-7	2-Methylphenol	1100U J	91-58-7	2-Chloronaphthalene	1100U J
108-60-1	bis(2-Chloroisopropyl)ether	1100U J	88-74-4	2-Nitroaniline	5200U J
106-44-5	4-Methylphenol	1100U J	131-11-3	Dimethylphthalate	1100U J
621-64-7	N-Nitroso-di-n-propylamine	1100U J	208-96-8	Acenaphthylene	1100U J
67-72-1	Hexachloroethane	1100U J	99-09-2	3-Nitroaniline	5200U J
98-95-3	Nitrobenzene	1100U J	83-32-9	Acenaphthene	1100U J
78-59-1	Isophorone	1100U J	51-28-5	2,4-Dinitrophenol	5200U J
88-75-5	2-Nitrophenol	1100U J	100-02-7	4-Nitrophenol	5200U J
105-67-9	2,4-Dimethylphenol	1100U J	132-64-9	Dibenzofuran	1100U J
65-85-0	Benzoic Acid	5200U J	121-14-2	2,4-Dinitrotoluene	1100U J
111-91-1	bis(2-Chloroethoxy)methane	1100U J	606-20-2	2,6-Dinitrotoluene	1100U J
120-83-2	2,4-Dichlorophenol	1100U J	84-66-2	Diethylphthalate	1100U J
120-82-1	1,2,4-Trichlorobenzene	1100U J	7005-72-3	4-Chlorophenyl-phenylether	1100U J
91-20-3	Naphthalene	1100U J	86-73-7	Fluorene	1100U J

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JZ
4/6/91

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

AnalIS ID: 901206-049

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. 8.3 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-126

Customer: J. KESSNER/R. SHUCK

File ID: >14511

Date Received: 6-DEC-1990

Date Analyzed: 17-JAN-1990

Date Extracted: 13-DEC-1990

pH:

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.78	14000	JAB
2.	UNKNOWN HYDROCARBON	14.13	7800	J
3.	UNKNOWN HYDROCARBON	16.02	13000	J
4.	UNKNOWN HYDROCARBON	16.92	4300	JB
5.	UNKNOWN HYDROCARBON	17.78	13000	J
6.	UNKNOWN	18.54	4100	J
7.	UNKNOWN HYDROCARBON	18.79	5800	J
8.	UNKNOWN HYDROCARBON	19.41	16000	J
9.	UNKNOWN	19.70	7000	JB
10.	UNKNOWN HYDROCARBON	20.38	4200	J
11.	UNKNOWN HYDROCARBON	20.97	15000	J
12.	UNKNOWN HYDROCARBON	21.67	8400	J
13.	UNKNOWN HYDROCARBON	22.43	16000	J
14.	UNKNOWN HYDROCARBON	22.52	8400	J
15.	UNKNOWN HYDROCARBON	23.01	13000	JB
16.	UNKNOWN HYDROCARBON	23.93	7300	J
17.	UNKNOWN HYDROCARBON	25.13	10000	JB
18.	UNKNOWN ARAMATIC KETONE	26.07	9300	JB
19.	UNKNOWN HYDROCARBON	26.38	8300	JB
20.	UNKNOWN HYDROCARBON	27.57	11000	JB
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

12
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

ANALYSIS DATA REPORT

Page 1 of 1

ANALIS ID: 901206-049
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 07637
 Instrument ID: 5970#2
 Authorized By: D. C. Canada

Customer Sample ID: N-126
 Customer: J. KESSNER/R. SHUCK
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number: PURGE & TRAP
 Percent Moisture: 8
 Percent Moisture (decanted):
 Associated Blank: 901212-004
 [] : Result has been Corrected for Spike

Date Analyzed: 12-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: GL HUDDLESTON
 QA File Number: NA

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	11U	79-00-5 1,1,2-Trichloroethane	5U
74-83-9 Bromomethane	11U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	11U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	11U	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	10 B LA	108-10-1 4-Methyl-2-pentanone	11U
67-64-1 Acetone	54 B LA	591-78-6 2-Hexanone	11U
75-15-0 Carbon Disulfide	5U	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	11U	1330-20-7 Xylene (total)	5U
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	11U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U		

JJ
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

Analysis ID: 901206-050
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14481
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: N-127
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
Preparation Procedure Number:
Percent Moisture: .1
Percent Moisture (decanted):
Associated Blank: 901214-083

Date Analyzed: 3-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: AK HEADRICK
QA File Number: NA

[] : Result has been Corrected for Spike

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	960U J	106-47-8	4-Chloroaniline	960U J
111-44-4	bis(2-Chloroethyl)ether	960U J	87-68-3	Hexachlorobutadiene	960U J
95-57-8	2-Chlorophenol	960U J	59-50-7	4-Chloro-3-methylphenol	960U J
541-73-1	1,3-Dichlorobenzene	960U J	91-57-6	2-Methylnaphthalene	960U J
106-46-7	1,4-Dichlorobenzene	960U J	77-47-4	Hexachlorocyclopentadiene	960U J
100-51-6	Benzyl Alcohol	960U J	88-06-2	2,4,6-Trichlorophenol	960U J
95-50-1	1,2-Dichlorobenzene	960U J	95-95-4	2,4,5-Trichlorophenol	4800U J
95-48-7	2-Methylphenol	960U J	91-58-7	2-Chloronaphthalene	960U J
108-60-1	bis(2-Chloroisopropyl)ether	960U J	88-74-4	2-Nitroaniline	4800U J
106-44-5	4-Methylphenol	960U J	131-11-3	Dimethylphthalate	960U J
621-64-7	N-Nitroso-di-n-propylamine	960U J	208-96-8	Acenaphthylene	960U J
67-72-1	Hexachloroethane	960U J	99-09-2	3-Nitroaniline	4800U J
98-95-3	Nitrobenzene	960U J	83-32-9	Acenaphthene	960U J
78-59-1	Isophorone	960U J	51-28-5	2,4-Dinitrophenol	4800U J
88-75-5	2-Nitrophenol	960U J	100-02-7	4-Nitrophenol	4800U J
105-67-9	2,4-Dimethylphenol	960U J	132-64-9	Dibenzofuran	960U J
65-85-0	Benzoic Acid	4800U J	121-14-2	2,4-Dinitrotoluene	960U J
111-91-1	bis(2-Chloroethoxy)methane	960U J	606-20-2	2,6-Dinitrotoluene	960U J
120-83-2	2,4-Dichlorophenol	960U J	84-66-2	Diethylphthalate	960U J
120-82-1	1,2,4-Trichlorobenzene	960U J	7005-72-3	4-Chlorophenyl-phenylether	960U J
91-20-3	Naphthalene	960U J	86-73-7	Fluorene	960U J

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

JS
4/6/91

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 2 of 2

Analysis ID: 901206-050
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >14481
Instrument ID: HP-5985
Authorized By: D. C. Canada

Customer Sample ID: N-127
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 5-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 13-DEC-1990
Preparation Procedure Number:
Percent Moisture: .1
Percent Moisture (decanted):
Associated Blank: 901214-083
[] : Result has been Corrected for Spike

Date Analyzed: 3-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: AK HEADRICK
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4800U J	53-70-3	Dibenz(a,h)anthracene	960U J
534-52-1	4,6-Dinitro-2-methylphenol	4800U J	191-24-2	Benzo(g,h,i)perylene	960U J
86-30-6	N-Nitrosodiphenylamine	960U J			
101-55-3	4-Bromophenyl-phenylether	960U J			
118-74-1	Hexachlorobenzene	960U J			
87-86-5	Pentachlorophenol	4800U J			
85-01-8	Phenanthrene	960U J			
120-12-7	Anthracene	960U J			
84-74-2	Di-n-butylphthalate	2500U J			
206-44-0	Fluoranthene	960U J			
129-00-0	Pyrene	960U J			
85-68-7	Butylbenzylphthalate	960U J			
91-94-1	3,3'-Dichlorobenzidine	2000U J			
56-55-3	Benzo(a)anthracene	960U J			
117-81-7	bis(2-Ethylhexyl)phthalate	960U J			
218-01-9	Chrysene	960U J			
117-84-0	Di-n-octylphthalate	960U J			
205-99-2	Benzo(b)fluoranthene	960U J			
207-08-9	Benzo(k)fluoranthene	960U J			
50-32-8	Benzo(a)pyrene	960U J			
193-39-5	Indeno(1,2,3-cd)pyrene	960U J			

JF
4/6/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

Oak Ridge K-25 Site

Analytical Chemistry Department

BNA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS TENTATIVELY IDENTIFIED COMPOUNDS

Analys ID: 901206-050

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec. .1 dec.

Extraction: (SepF/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: N-127

Customer: J. KESSNER/R. SHUCK

File ID: >14481

Date Received: 5-DEC-1990

Date Analyzed: 3-JAN-1991

Date Extracted: 13-DEC-1990

pH: _____

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.72	21000	JAB
2.	UNKNOWN ALCOHOL	13.87	570	JB
3.	UNKNOWN	16.90	2300	JB
4.	UNKNOWN	17.27	2900	JB
5.	UNKNOWN	19.68	13000	JB
6.	UNKNOWN	20.88	2800	JB
7.	UNKNOWN HYDROCARBON	23.75	640	JB
8.	UNKNOWN HYDROCARBON	23.88	390	J
9.	UNKNOWN PHTHALATE ESTER	24.68	690	JB
10.	UNKNOWN	24.86	550	J
11.	UNKNOWN HYDROCARBON	25.08	660	JB
12.	UNKNOWN AROMATIC KETONE	26.82	7200	JB
13.	UNKNOWN HYDROCARBON	26.34	570	JB
14.	UNKNOWN HYDROCARBON	27.55	1500	JB
15.	UNKNOWN HYDROCARBON	28.70	1900	JB
16.	UNKNOWN	29.70	880	J
17.	UNKNOWN HYDROCARBON	29.79	1700	JB
18.	UNKNOWN HYDROCARBON	30.85	1600	JB
19.	UNKNOWN ALKOXY COMPOUND	31.80	4400	JB
20.	UNKNOWN PHTHALATE ESTER	32.36	1400	J
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

J 4/6/91

Data Reporting Qualifiers:

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- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

AnalIS ID: 901206-050
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07638
Instrument ID: 5970#2
Authorized By: D. C. Canada

Customer Sample ID: N-127
Customer: J. KESSNER/R. SHUCK
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 6-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number: PURGE & TRAP
Percent Moisture: 0
Percent Moisture (decanted):
Associated Blank: 901212-004
[] : Result has been Corrected for Spike

Date Analyzed: 12-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: GL HUDDLESTON
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	9-8.4	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	71-8.4	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	10U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

JF
4/6/91

Data Reporting Qualifiers:

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- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

WHC-SD-EN-TI-136, Rev. 0

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Sample Date April 5, 1991

WHC-SD-EN-TI-136, Rev. 0

MARTIN MARIETTA ENERGY SYSTEMS, INC.POST OFFICE BOX 2003
OAK RIDGE, TENNESSEE 37831-7440

July 16, 1991

Ms. Joan Kessner
Westinghouse Hanford Company
Office of Sample Management
2355 Stevens Drive
Richland, Washington, 99352

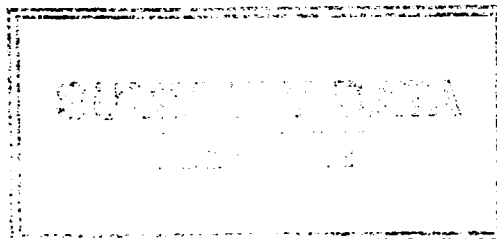
Dear Ms. Kessner:

Analytical Results Package on Project 90-027: Underground Storage Tanks Samples

Attached are the analytical results on five (5) Underground Storage Tanks soil samples, Project 90-028, received into the K-25 Site Analytical Chemistry Department (ACD) laboratories on March 9, 1991. Also attached are copies of the Chain of Custody records for the samples, and a sample identification table. As previously requested in the letter dated December 20, 1990, the results are reported in ACD's AnaLis report format. All data quality objectives were satisfied on this project.

Total Petroleum Hydrocarbons

The total petroleum hydrocarbons analysis was performed by ACD's TP-184203 method, an extraction method for determination of total petroleum hydrocarbons in solids. TP-184203 is a modification of EPA 418.1.



Ms. Joan Kessner

2

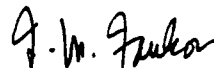
July 16, 1991

I certify that this data package is in compliance with the terms and conditions of the OSM's revised Statement of Work and letter dated December 20, 1990, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

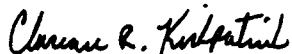
Sincerely,



Deborah L. Amburgey
Program Manager
Hanford Support Program



Fred M. Faulcon
Program Manager
Waste Management Analysis



Clarence R. Kirkpatrick
Acting Department Manager
K-25 Site Analytical Chemistry Department

Attachments

cc/attach: D.L.Amburgey
S.R.Smith - RC

cc: N.P.Buddin
H.H.Sullivan

Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

Date Printed:
15-JUL-1991 12:43

ANALIS ID: 910311-006 Project: G132 0275 Customer Sample ID: MK-101
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 5-MAR-1991 Date Sample Received: 9-MAR-1991
Sampled By: Date Sample Completed: 7-APR-1991
Material Description: SOIL ☐ : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
184203	TP-184203	Petroleum Hydrocarbons	2.366	%	JC OSBORNE	91-4	6-APR-1991

Program Manager: D. L. Amburgey
Date Approved: 8-APR-1991

Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

Date Printed:
15-JUL-1991 12:43

AnalIS ID: 910311-007 Project: G132 027S Customer Sample ID: MK-102
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 5-MAR-1991 Date Sample Received: 9-MAR-1991
Sampled By: Date Sample Completed: 7-APR-1991
Material Description: SOIL ☐ : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
184203	TP-184203	Petroleum Hydrocarbons	2.948	%	JC OSBORNE	91-4	6-APR-1991

Program Manager: D. L. Amburgey
Date Approved: 8-APR-1991

Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

Date Printed:
15-JUL-1991 12:43

AnalIS ID: 910311-008 Project: G132 027S Customer Sample ID: MK-103
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 5-MAR-1991 Date Sample Received: 9-MAR-1991
Sampled By: Date Sample Completed: 7-APR-1991
Material Description: SOIL ☐ : Result has been Corrected for Spike

Activ.					QA	Date
Number	Procedure No.	Analysis	Result	Units	Analyst	File Number
Completed						
184203	TP-184203	Petroleum Hydrocarbons	0.057	%	JC OSBORNE	91-4

Program Manager: D. L. Amburgey
Date Approved: 8-APR-1991

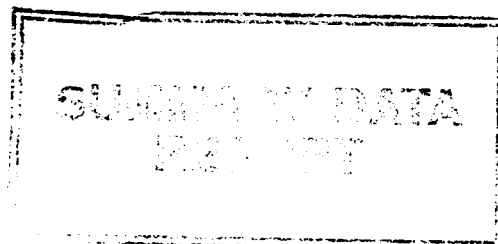
Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

Date Printed:
15-JUL-1991 12:43

ANALIS ID: 910311-009 Project: G132 027S Customer Sample ID: MK-104
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 5-MAR-1991 Date Sample Received: 9-MAR-1991
Sampled By: Date Sample Completed: 7-APR-1991
Material Description: SOIL ☐ : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
184203	TP-184203	Petroleum Hydrocarbons	<0.001	%	JC OSBORNE	91-4	6-APR-1991

Program Manager: D. L. Amburgey
Date Approved: 8-APR-1991



Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

Date Printed:
15-JUL-1991 12:44

ANALIS ID: 910311-010 Project: G132 027S Customer Sample ID: MK-105
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 5-MAR-1991 Date Sample Received: 9-MAR-1991
Sampled By: Date Sample Completed: 7-APR-1991
Material Description: SOIL ☐ : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
184203	TP-184203	Petroleum Hydrocarbons	12.592	%	JC OSBORNE	91-4	6-APR-1991

Program Manager: D. L. Amburgey
Date Approved: 8-APR-1991

WHC-SD-EN-TI-136, Rev. 0

WHC-SD-EN-TI-136, Rev. 0

182 CAISSONS

Sample Date April 26, 1992

WHC-SD-EN-TI-136, Rev. 0

000005

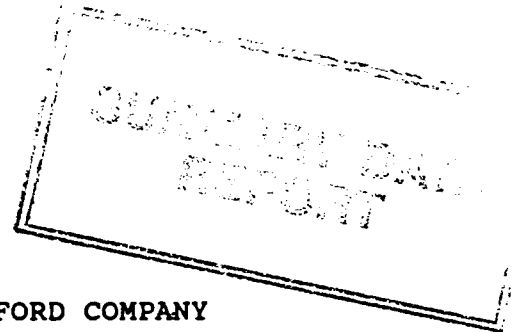
CASE NARRATIVE

LABORATORY: TMA/ARLI

CASE: 03-090

CONTRACT ID: WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE: March 30, 1992



1.0 DESCRIPTION OF CASE:

Three soil samples were analyzed for Total Petroleum Hydrocarbons and Purgeable Aromatics. Preliminary results were provided by FAX within 10 days of VTSR. This package represents the final results.

2.0 SAMPLE LIST:

<u>WESTINGHOUSE ID</u>	<u>LAB ID</u>	<u>MATRIX</u>	<u>METHOD</u>
B01GM0	A2-03-090-01	SOIL	HC,THE,THP,BX
B01GM1	A2-03-090-02	SOIL	HC,THE,THP.BX
B01GM3	A2-03-090-03	SOIL	HC,THE,THP,BX

Method Codes: HC = EPA 418.1, THE = EPA 8015 EXTRACTABLE,
THP = EPA 8015M PURGEABLE, BX = EPA 8020 BTEX

3.0 COMMENTS ON SAMPLE RECEIPT:

The samples were received intact and properly documented.

4.0 COMMENTS ON ANALYSIS:

4.1 EPA 418.1 - TOTAL PETROLEUM BY IR:

All samples were extracted and analyzed within method holding time.

All QC results were acceptable.

4.2 EPA 8015M - EXTRACTABLE HYDROCARBON:

All samples were extracted and analyzed within method holding time.

All QC results were acceptable. There were no problems encountered during analysis. Solvent peaks were eliminated using electronic subtraction. Both the raw and subtracted chromatograms have been included in the package.

4.3 EPA 8015M - PURGEABLE HYDROCARBONS:

All samples were analyzed within method holding time.

All QC results were acceptable. There were no problems encountered during analysis.

4.4 EPA 8020 - BTEX:

All samples were analyzed one day past the method holding time but within 10 days of VTSR.

All QC results were acceptable. There were no problems.

All positive hits were confirmed by GCMS.

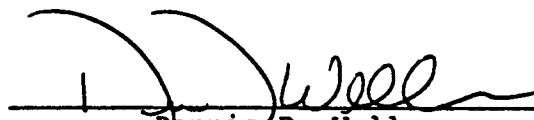
5.0 DATA PACKAGE COMMENTS:

The Format of the data deliverable was designed to meet or exceed the requirements of the Westinghouse Hanford Company Statement of Work. The intent of the package design is to provide sufficient data for "stand alone" validation. While the format of the package is "CLP like" Thermo Analytical Inc. makes no claim that this package duplicates in part or in total an EPA CLP data package.

" I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."



Nicole Roth
CLP Manager


Dennis D. Wells
Technical Director

TMA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID B01GM0SAMPLE # 01 FRACTIONS: D,EDate & Time Collected 03/26/92

Category _____

418_1S 18.2
mg/KgSAMPLE ID B01GM1SAMPLE # 02 FRACTIONS: EDate & Time Collected 03/26/92

Category _____

418_1S 149.
mg/KgSAMPLE ID B01GM3SAMPLE # 03 FRACTIONS: A,B,CDate & Time Collected 03/26/92

Category _____

418_1S 59.4
mg/KgSAMPLE ID B01GM3 DuplicateSAMPLE # 03 FRACTIONS: DDate & Time Collected 03/26/92

Category _____

418_1S 47.8
mg/KgSAMPLE ID B01GM3 Blank SpikeSAMPLE # 03 FRACTIONS: EDate & Time Collected 03/26/92

Category _____

418_1S 115
% Recovery

000017

TNA Inc.

REPORT

Work Order # A2-83-090

Received: 03/30/92

Results by Sample

SAMPLE ID B01GNDFRACTION Q1A TEST CODE B015HV NAME Volatile Fuels-TPHDate & Time Collected 03/26/92

Category _____

MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/08/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID B01GHOFRACTION Q1ATEST CODE BTEXNAME BTEX by EPA 8020Date & Time Collected 03/26/92Category

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 04/10/92Dilution factor: 5.00Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	2.5
108-88-3	Toluene	ND	2.5
100-41-4	Ethylbenzene	ND	2.5
1330-20-7	Xylenes (Total)	ND	2.5

X Recovery Surrogate Compound

Bromofluorobenzene 94

ND = Not detected at the specified limits

Form 1

TNA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID B01GH0FRACTION 010TEST CODE 8015MSNAME EXTRACTABLE FUELS - TPHDate & Time Collected 03/26/92Category

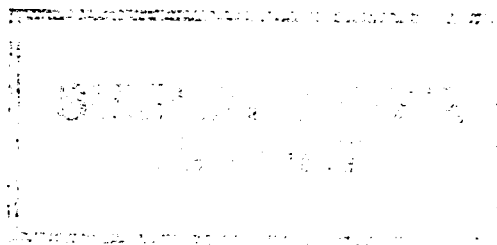
MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/08/92Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	ND	10.0
Hydraulic Range	ND	5.0

ND = Not detected at the specified limits

Form 1



TNA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID 801CH1FRACTION 92A TEST CODE 8015MY NAME Volatile Fuels-TPHDate & Time Collected 03/26/92Category

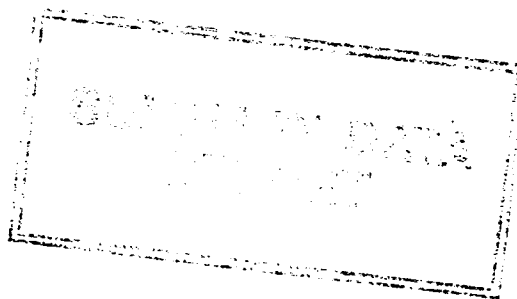
MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/08/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form 1



TNA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID 001GH1FRACTION 02ATEST CODE BTEXNAME BTEX by EPA 8020Date & Time Collected 03/26/92Category

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 04/10/92Dilution factor: 5.00Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	2.5
108-88-3	Toluene	21	2.5
100-41-4	Ethylbenzene	ND	2.5
1330-20-7	Xylenes (Total)	ND	2.5

X Recovery Surrogate Compound

Bromofluorobenzene 88

ND = Not detected at the specified limits

Form 1

TRA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID 801GM1 FRACTION Q2R TEST CODE 8015MS NAME EXTRACTABLE FUELS - TPN
Date & Time Collected 03/26/92 Category _____

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: Soil
Date Analyzed: 06/08/92
Dilution factor: 1.00
Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	63.0	10.0
Hydraulic Range	ND	5.0

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID 0016M3FRACTION Q3A TEST CODE BTEX NAME BTEX by EPA 8020Date & Time Collected 03/26/92Category

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 04/10/92Dilution factor: 5.00Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	2.5
108-88-3	Toluene	16	2.5
100-41-4	Ethylbenzene	ND	2.5
1330-20-7	Xylenes (Total)	ND	2.5

X Recovery Surrogate Compound

Bromofluorobenzene 76

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID 801GH3FRACTION Q3A TEST CODE 8015HV NAME Volatile Fuels-TPHDate & Time Collected 03/26/92

Category _____

MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/08/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form 1

TNA Inc.

REPORT

Work Order # A2-03-090

Received: 03/30/92

Results by Sample

SAMPLE ID 801GH3FRACTION 03B TEST CODE 8015MS NAME EXTRACTABLE FUELS - TPHDate & Time Collected 03/26/92Category

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/08/92Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	21.3	10.0
Hydraulic Range	ND	5.0

ND = Not detected at the specified limits

Form 1

0000000



ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD
RFW #: 9203L841, GC VOLATILE
W.O. #: 6168-02-01

SAMPLES RECEIVED: 03-28-92

NARRATIVE

One (1) soil sample was collected on 03-26-92.

The sample and its associated QC samples were analyzed according to criteria set forth in Method 602 for Selected Aromatic Organic Volatile target compounds on 04-03,06-92.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All surrogate recoveries were within laboratory control limits.
2. One (1) of eight (8) blank spike recoveries was outside method control limits. There was no impact on this case because analytes were not detected in the sample.

A handwritten signature in cursive script, reading "Margaret M. Beatty".

Jack R. Fuschall, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

4/10/92
Date

WMC-SD-EN-TI-136, Rev. 0
000005

Roy F. Weston, Inc. - Lionville Laboratory

Purgeable Aromatics by GC, Method 602

Report Date: 04/07/92 12:31

RFW Batch Number: 9203L841

Client: WESTINGHOUSE HANFORD

Work Order: 6168-02-01-0000

Page: 1

	Cust ID:	B01GM2	B01GM2	B01GM2	BLK	BLK BS	BLK
Sample	RFW#:	001	001 MS	001 MSD	92LV5055-MB1	92LV5055-MB1	92LV5056-MB1
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
aaa-Trifluorotoluene		69 %	81 %	73 %	87 %	93 %	72 %
-----f1-----f1-----f1-----f1-----f1-----f1-----f1							
Benzene		0.94 U	75 %	70 %	1.0 U	81 %	1.0 U
Ethylbenzene		0.94 U	65 %	57 %	1.0 U	77 %	1.0 U
Toluene		0.94 U	68 %	63 %	1.0 U	75 %	1.0 U
Xylene (total)		1.9 U	65 %	57 %	2.0 U	79 %	2.0 U

	Cust ID:	BLK BS
Sample	RFW#:	92LV5056-MB1
Information	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG
aaa-Trifluorotoluene		97 %
-----f1-----f1-----f1-----f1-----f1-----f1-----f1		
Benzene		83 %
Ethylbenzene		80 %
Toluene		78 %
Xylene (total)		80 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
% = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

D-150

RFW Batch Number: 9203L841

Client: WESTINGHOUSE HANFORD

Work Order: 6168-02-01-0000

Page: 1

Sample Information	Cust ID:	B01GM2	B01GM2	B01GM2	BLK	BLK BS
RFW#:	001	001 MS	001 MSD	92LV6019-MB1	92LV6019-MB1	
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
D.F.:	1.00	1.00	1.00	1.00	1.00	
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	

Gasoline	91 U	47 %	56 %	100 U	100 %

0000004
WHC-SD-EN-TI-136, Rev. 0

D-151

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
% = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

GC VOLATILES SHEET

0000009

CLIENT SAMPLE NO.

WHC-SD-EN-TI-136, Rev 0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

B01GM2

Client: WESTINGHOUSE HANFORDMatrix: SOILLab Sample ID: 9203L841-001Sample wt/vol: 5.66 (g/mL) GLab File ID: D3242591Level: (low/med) LOWDate Received: 03/28/92% Moisture: not dec. 3Date Analyzed: 04/03/92Column: (pack/cap) PACKDilution Factor: 1.00

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

01-000-000-----Gasoline	91	U
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12/88 Rev.

Roy F. Weston, Inc. - Lionville Laboratory

Petroleum Hydrocarbons by IR

Report Date: 04/02/92 15:40

RFW Batch Number: 9203L841

Client: WESTINGHOUSE HANFORD

Work Order: 6168-02-01-0000

Page: 1

	Cust ID:	BO1GM2	BO1GM2	BO1GM2	PBLK	PBLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	92DHC074-MB1	92DHC074-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
=====f =====f =====f =====f =====f =====f =====						
Petroleum Hydrocarbon		110	87 %	102 %	4.0 U	91 %

WHC-SD-EN-TI-136, Rev. 0

D-153

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

1D
PESTICIDE ORGANICS ANALYSIS SHEET

0000015

CLIENT SAMPLE NO.

WHC-SD-EN-TI-136, Rev. 0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

B01GM2

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L841-001

Sample wt/vol: 25.0 (g/mL) G

Lab File ID: 04029227.14

Level: (low/med) LOW

Date Received: 03/28/92

% Moisture: not dec. 3 dec.

Date Extracted: 04/01/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/03/92

GPC Cleanup: (Y/N) N pH: 7.4

Dilution Factor: 0.0500 1.0
by 4/6/92

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/kg

000-00-0-----Diesel fuel	14	
--------------------------	----	--

FORM 1 PEST

12/88 Rev.

Roy F. Weston, Inc. - Lionville Laboratory

GC SCAN

Report Date: 04/07/92 10:23

RFW Batch Number: 9203L841

Client: WESTINGHOUSE HANFORD

Work Order: 6168-02-01-0000

Page: 1

	Cust ID:	B01GM2	B01GM2	B01GM2	B01GM2	BLK	BLK BS
Sample Information	RFW#:	001	001 DL	001 MS	001 MSD	92LE0501-MB1	92LE0501-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	5.00	5.00	5.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	p-Terphenyl	103 %	87 %	87 %	105 %	107 %	84 %
	-----fl-----fl-----fl-----fl-----fl-----fl-----fl						
Diesel fuel		14	16	94 %	96 %	4.0 U	79 %

000005

WHC-SD-EN-TI-136, Rev. 0

D-155

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

GC VOLATILES SHEET

0000012

CLIENT SAMPLE NO.

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

B01GM2

Client: WESTINGHOUSE HANFORDMatrix: SOILLab Sample ID: 9203L841-001Sample wt/vol: 5.50 (g/mL) GLab File ID: D3242476Level: (low/med) LOWDate Received: 03/28/92% Moisture: not dec. 3Date Analyzed: 04/03/92Column: (pack/cap) PACKDilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>
---------	----------	--

71-43-2-----Benzene	0.94	U
100-41-4-----Ethylbenzene	0.94	U
108-88-3-----Toluene	0.94	U
1330-20-7-----Xylene (total)	1.9	U

12/88 Rev.

WHC-SD-EN-TI-136, Rev. 0

105-N-LFT

April 30, 1992

WHC-SD-EN-TI-136, Rev. 0

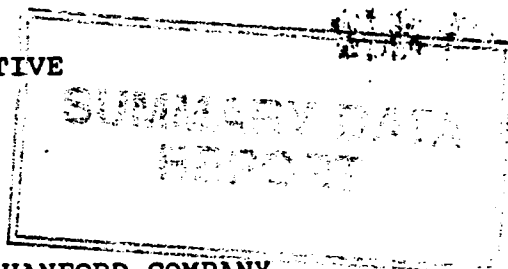
000002

CASE NARRATIVE

LABORATORY: TMA/ARLI

CASE: 04-016

CONTRACT ID: WESTINGHOUSE HANFORD COMPANY



SDG RECEIPT DATE: APRIL 3, 1992

1.0 DESCRIPTION OF CASE:

Five soil samples were analyzed for Total Petroleum Hydrocarbons and Purgeable Aromatics. Preliminary results were provided by FAX within 10 days of VTSR. This package represents the final results.

2.0 SAMPLE LIST:

<u>WESTINGHOUSE ID</u>	<u>LAB ID</u>	<u>MATRIX</u>	<u>METHOD</u>
B01GM4	A2-04-016-01	SOIL	HC,THE,THP,BX
B01GM5	A2-04-016-02	SOIL	HC,THE,THP.BX
B01GM6	A2-04-016-03	SOIL	HC,THE,THP,BX
B01GM8	A2-04-016-04	SOIL	HC,THE,THP,BX
B01GM9	A2-04-016-05	SOIL	HC,THE,THP,BX

Method Codes:HC = EPA 418.1, THE = EPA 8015 EXTRACTABLE,
THP = EPA 8015M PURGEABLE, BX = EPA 8020 BTEX

3.0 COMMENTS ON SAMPLE RECEIPT:

The samples were received intact and properly documented.

4.0 COMMENTS ON ANALYSIS:

4.1 EPA 418.1 - TOTAL PETROLEUM BY IR:

All samples were extracted and analyzed within method holding time.

The large difference in the duplicate analysis was attributed to sample inhomogeneity.

4.2 EPA 8015M - EXTRACTABLE HYDROCARBON:

All samples were extracted and analyzed within method holding time.

000003

All QC results were acceptable. There were no problems encountered during analysis. Solvent peaks were eliminated using electronic subtraction. Both the raw and subtracted chromatograms have been included in the package.

4.3 EPA 8015M - PURGEABLE HYDROCARBONS:

All samples were analyzed within method holding time.

All QC results were acceptable. There were no problems encountered during analysis.

4.4 EPA 8020 - BTEX:

All samples were analyzed within method holding time.

All QC results were acceptable. There were no problems.

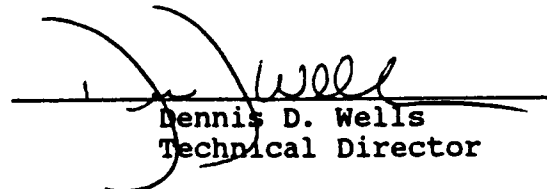
5.0 DATA PACKAGE COMMENTS:

The Format of the data deliverable was designed to meet or exceed the requirements of the Westinghouse Hanford Company Statement of Work. The intent of the package design is to provide sufficient data for "stand alone" validation. While the format of the package is "CLP like" Thermo Analytical Inc. makes no claim that this package duplicates in part or in total an EPA CLP data package.

" I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."



Nicole Roth
CLP Manager



Dennis D. Wells
Technical Director

000011

TMA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID <u>B01GM4</u>	SAMPLE # <u>01</u> FRACTIONS: <u>A,B,C</u>
418_1S <u>7.0</u> mg/Kg	Date & Time Collected <u>03/30/92</u> Category _____
SAMPLE ID <u>B01GM5</u>	SAMPLE # <u>02</u> FRACTIONS: <u>D,E</u>
418_1S <u>20.2</u> mg/Kg	Date & Time Collected <u>03/30/92</u> Category _____
SAMPLE ID <u>B01GM6</u>	SAMPLE # <u>03</u> FRACTIONS: <u>E</u>
418_1S <u>63.6</u> mg/Kg	Date & Time Collected <u>03/30/92</u> Category _____
SAMPLE ID <u>B01GM8</u>	SAMPLE # <u>04</u> FRACTIONS: <u>A,B,C</u>
418_1S <u>15.3</u> mg/Kg	Date & Time Collected <u>03/30/92</u> Category _____
SAMPLE ID <u>B01GM8 Duplicate</u>	SAMPLE # <u>04</u> FRACTIONS: <u>D</u>
418_1S <u>162</u> % RPD	Date & Time Collected <u>03/30/92</u> Category _____
SAMPLE ID <u>B01GM8 Blank Spike</u>	SAMPLE # <u>04</u> FRACTIONS: <u>E</u>
418_1S <u>104.8</u> % Recovery	Date & Time Collected <u>03/30/92</u> Category _____

TNA Inc.

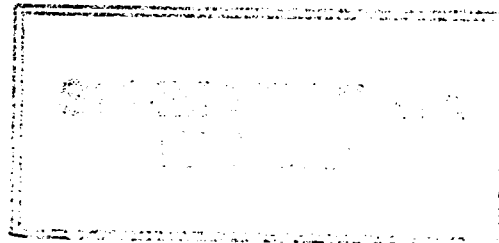
REPORT

Work Order # A2-84-016

Received: 04/03/92

Results by Sample

SAMPLE ID <u>B01GN9</u>	SAMPLE # <u>05</u> FRACTIONS: <u>A,B,C</u>
Date & Time Collected <u>03/30/92</u> Category _____	
418_1S <u>2.2</u> mg/Kg	



000020

Received: 04/03/92

TMA Inc.

REPORT

Work Order # A2-04-016

Results by Sample

SAMPLE ID 801GM4 FRACTION Q1R TEST CODE 8015HS NAME EXTRACTABLE FUELS - TPH
Date & Time Collected 03/10/92 Category _____

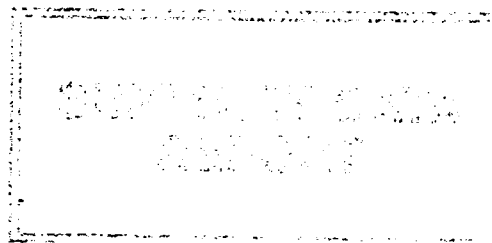
MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: Soil
Date Analyzed: 04/09/92
Dilution factor: 1.00
Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	ND	10.0
Hydraulic Range	ND	5.0

ND = Not detected at the specified limits

Form I



TMA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 801GM4FRACTION 81A TEST CODE 8015HV NAME Volatile Fuels-TPHDate & Time Collected 03/10/92Category

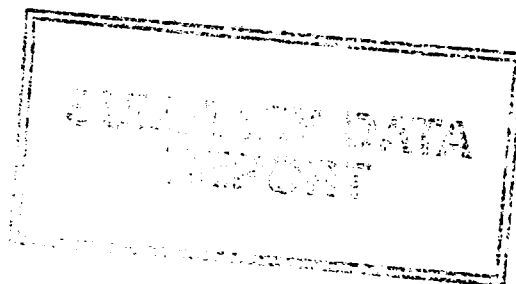
MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form 1



TNA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID B016H4FRACTION 01ATEST CODE BTEXNAME BTEX by EPA 8020Date & Time Collected 03/10/92

Category _____

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 04/13/92Dilution factor: 5.00Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	2.5
108-88-3	Toluene	22	2.5
100-41-4	Ethylbenzene	ND	2.5
1330-20-7	Xylenes (Total)	ND	2.5

% Recovery Surrogate Compound

Bromofluorobenzene 95

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 8016H5FRACTION 02A TEST CODE 8015MY NAME Volatile Fuels-TPHDate & Time Collected 03/30/92

Category _____

MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form I

TMA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 801GM5FRACTION Q2DTEST CODE 8015MSNAME EXTRACTABLE FUELS - TPHDate & Time Collected 03/30/92

Category _____

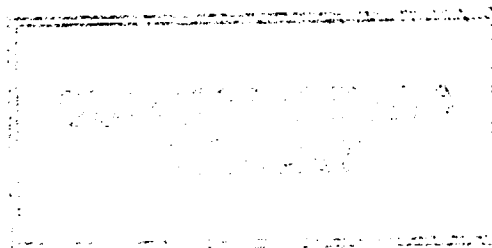
MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	ND	10.0
Hydraulic Range	24.2	5.0

ND = Not detected at the specified limits

Form I



000134

TNA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID B01GH5FRACTION 02ATEST CODE BTEXNAME BTEX by EPA 8020Date & Time Collected 03/30/92Category

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 04/13/92Dilution factor: 5.00Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	2.5
108-88-3	Toluene	17.2	2.5
100-41-4	Ethylbenzene	ND	2.5
1330-20-7	Xylenes (Total)	ND	2.5

X Recovery Surrogate Compound

Bromofluorobenzene 74

ND = Not detected at the specified limits

Form I

TNA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 801GM6FRACTION 838 TEST CODE 8015MS NAME EXTRACTABLE FUELS - TPHDate & Time Collected 03/30/92

Category _____

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	ND	10.0
Hydraulic Range	63.0	5.0

ND = Not detected at the specified limits

Form I

TNA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID B01GH6FRACTION Q3A TEST CODE BTEX NAME BTEX by EPA 8020Date & Time Collected 03/30/92Category

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 04/13/92Dilution factor: 5.00Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	2.5
108-88-3	Toluene	14	2.5
100-41-4	Ethylbenzene	ND	2.5
1330-20-7	Xylenes (Total)	ND	2.5

% Recovery Surrogate Compound

Bromofluorobenzene 82

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 801GM6FRACTION 03ATEST CODE 8015NYNAME Volatile Fuels-TPHDate & Time Collected 03/30/92

Category _____

MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form I

TNA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 801GWSFRACTION 04BTEST CODE 8015MSNAME EXTRACTABLE FUELS - TPHDate & Time Collected 03/30/92Category

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	ND	10.0
Hydraulic Range	ND	5.0

ND = Not detected at the specified limits

Form 1

000138

TMA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 801GMBFRACTION Q4A TEST CODE BTEX NAME BTEX by EPA 8020Date & Time Collected 03/30/92

Category _____

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 04/13/92Dilution factor: 5.00Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	2.5
108-88-3	Toluene	13	2.5
100-41-4	Ethylbenzene	ND	2.5
1330-20-7	Xylenes (Total)	ND	2.5

% Recovery Surrogate Compound

Bromofluorobenzene 77

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID B016M8FRACTION 04ATEST CODE 8015MVNAME Volatile Fuels-TPHDate & Time Collected 03/30/92

Category _____

MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form I

TRA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID 8016M9 FRACTION 05B TEST CODE 8015MS NAME EXTRACTABLE FUELS - TPB
Date & Time Collected 03/30/92 Category

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: Soil
Date Analyzed: 04/09/92
Dilution factor: 1.00
Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	ND	5.0
C9 - C22 Diesel Range	ND	10.0
Hydraulic Range	ND	5.0

ND = Not detected at the specified limits

Form 1

TNA Inc.

REPORT

Work Order # A2-04-016

Received: 04/03/92

Results by Sample

SAMPLE ID B016H9FRACTION Q5A TEST CODE 8015HY NAME Volatile Fuels-TPHDate & Time Collected 03/30/92

Category _____

MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 04/09/92Dilution factor: 5.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	25.0

ND = Not detected at the specified limits

Form I

SAMPLE PREP RECORD

Sheet no.: 1

Extract. Date: 04/10/92

Extraction Batch No: 92D1V017

Analyst: GJ

Method: N/A

Test: 0602

Cleanup Date:

Analyst:

Client: WESTINGHOUSE HANFORD

LIMS Report Date: 04/10/92

Solvent:

Adsorbent:

Sample No:	Client Name Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
9204L881-	WESTINGHOUSE HANFORD										
001 X	BO1GM7	7	5.0	1.0		5		1.0	N	34	2.9
001 XS	BO1GM7	7	5.0	1.0	1.0	5		1.0	N	34	2.9
001 XT	BO1GM7	7	5.0	1.0	1.0	5		1.0	N	34	2.9
92D1V017-MB1 X		7	5.0	1.0		5		1.0	N		1.0
92D1V017-MB1 XS		7	5.0	1.0	1.0	5		1.0	N		1.0

Comments:

Surrogate:

Spike:

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer

D-179

WHC-SD-EN-TI-136, Rev. 0

Roy F. Weston, Inc. - Lionville Laboratory
 602X ANALYTICAL DATA PACKAGE FOR
 WESTINGHOUSE HANFORD

DATE RECEIVED: 04/03/92

RFW LOT # :9204L881

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO1GM7	001	S	92D1V017	03/30/92	N/A	04/09/92
BO1GM7	001 MS	S	92D1V017	03/30/92	N/A	04/09/92
BO1GM7	001 MSD	S	92D1V017	03/30/92	N/A	04/09/92
LAB QC:						
BLK	MB1	S	92D1V017	N/A	N/A	04/09/92
BLK	MB1 BS	S	92D1V017	N/A	N/A	04/09/92

WESTON

ROY F. WESTON, INC.
Lionville Laboratory



Client: WESTINGHOUSE HANFORD
RFW #: 9204L881 (PETROLEUM HYDROCARBONS)
W.O. #: 6168-02-01-0000

U = Indicates that the compound was analyzed for but not detected. The detection limit for the sample (not the method detection limit) is reported with U (e.g., 10u).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10mg/L and a concentration of 3mg/L is calculated, it is reported as 3J.

NA = Not Applicable.

NR = Not Required.


NC - Not calculable, results below detection limit.

The method used for the analysis of petroleum hydrocarbons is EPA Method 418.1 (USEPA 600/4-79-020). Solid samples are extracted using Method 9071 (USEPA SW846) then analyzed by EPA Method 418.1.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analysis:

- Blank was free of contamination.
- Blank spike recovery was inside laboratory control limits.
- Matrix spike recoveries were within laboratory control limits.

Samples Received : 04/03/92
Date of Extraction: 04/06/92
Date of Analysis : 04/09/92

for 
J. Michael Taylor
Project Director
Lionville Analytical Laboratory

4/13/92
Date

Roy F. Weston, Inc. - Lionville Laboratory
PHC ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 04/03/92

RFW LOT # :9204L881

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO1GM7	001	S	92DHC080	03/30/92	04/06/92	04/09/92
BO1GM7	001 MS	S	92DHC080	03/30/92	04/06/92	04/09/92
BO1GM7	001 MSD	S	92DHC080	03/30/92	04/06/92	04/09/92

LAB QC:

MB1	S	92DHC080	N/A	04/06/92	04/09/92
MB1 BS	S	92DHC080	N/A	04/06/92	04/09/92

Report Date: 04/13/92 12:24

RFW Batch Number: 9204L881

Client: WESTINGHOUSE HANFORD

Work Order: 6168-02-01-0000

Page: 1

	Cust ID:	B01GM7	B01GM7	B01GM7	PBLK	PBLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	92DHC080-MB1	92DHC080-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
<hr/>						
Petroleum Hydrocarbon		33	107 %	98 %	4.0 U	91 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
GCSC ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 04/03/92

RFW LOT # :9204L881

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO1GM7	001	S	92LE0528	03/30/92	04/06/92	04/11/92
BO1GM7	001 MS	S	92LE0528	03/30/92	04/06/92	04/11/92
BO1GM7	001 MSD	S	92LE0528	03/30/92	04/06/92	04/11/92
LAB QC:						
BLK	MB1	S	92LE0528	N/A	04/06/92	04/11/92
BLK	MB1 BS	S	92LE0528	N/A	04/06/92	04/11/92



WHC-SD-EN-TI-136, Rev. 0

TANK 100-N-SS-27

Sample Date December 18, 1990

WHC-SD-EN-TI-136, Rev. 0

MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2003
OAK RIDGE, TENNESSEE 37831-7440

March 7, 1991

Ms. Joan Kessner
Westinghouse Hanford Company
Office of Sample Management
2344 Stevens Drive
Richland, Washington 99352

Dear Ms. Kessner:

Analytical Results Package on Project 90-027: Underground Storage Tanks Sample Analysis

Attached are the results on the Underground Storage Tanks samples, Project 90-027, received into the Analytical Chemistry Department (ACD) laboratories on December 20, 1990. Also attached are the Chain of Custody records for the samples, a list detailing the protocol utilized in performing these analyses (in accordance with agreements between the OSM and R-25 ACD) and sample identification information.

The results are reported on ACD's AnaLis report format per letter dated December 20, 1990. All data quality objectives were satisfied on this project.

The lead analysis on sample 27-102MS, a matrix sample, is incomplete at this time. However, in order that the data deliverables package on the project not be delayed any longer, the remainder of the package is being released. Resolution of this analysis is pending.

Lead

All the required quality control criteria was applied to the samples in the SDG. For this analysis all instrument calibrations (SPCC and CCC) were within acceptance criteria. The internal matrix spike percent recoveries for the TCLP analysis were within acceptance limits. Interference check samples results were within acceptable limits. Replicate analyses were conducted on samples in the SDG and all relative percent deviations were within acceptance limits. All internal controls and check standards run during these analyses were within the acceptance limits. At present the ACD cannot report the lead blank results through the AnaLis database, however it is required according to ACD QA/QC policy that no analysis result be reported for any element which is found in the prep blank above the data reporting limits. The raw data within the QA batch (SDG) for any particular analysis contains the prep blank data and is available upon request.

Semi-Volatiles: BNA

The samples were not extracted within the prescribed holding time, missing the seven (7) day holding time for extraction by seven (7) days. Once extracted, the samples were analyzed within the prescribed holding time. All surrogate standards criteria were within percent recovery acceptance limits. All DFTPP tune criteria were within acceptance criteria. All "CCC" and "SPCC" components met acceptance criteria for both the initial and continuing calibration check samples. All internal standard areas were within acceptance criteria. All matrix spikes and matrix spike duplicates were within the acceptance requirements.

Volatiles: VOA

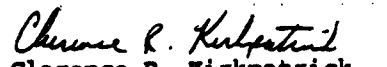
All the samples were analyzed within the prescribed holding times. All surrogate standards criteria were within percent recovery acceptance limits. All BFB tune criteria were within acceptance criteria. All CCC and SPCC components met acceptance criteria for both the initial and continuing calibration check sample. All internal standard areas were within acceptance criteria. All matrix spikes and matrix spike duplicates were within the acceptance requirements.

I certify that this data package is in compliance with the terms and conditions of the OSM's revised Statement of Work and letter dated December 20, 1990, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Sincerely,



Deborah L. Amburgey
Program Manager
Hanford Support Program



Clarence R. Kirkpatrick
Program Manager
Waste Management Analysis



Roy W. Morrow
Department Manager
Analytical Chemistry Department (K-25)

Attachments

cc/attach: D.L.Amburgey
S.R.Smith - RC

cc: N.P.Buddin
S.W.Goza
H.H.Sullivan

Analysis ID: 901226-051 Project: G132 027S Customer Sample ID: 27-101
 Customer: KESSNER/ROOS Requisition Number:
 Date Sampled: 18-DEC-1990 Date Sample Received: 20-DEC-1990
 Sampled By: Date Sample Completed: 27-JAN-1991
 Material Description: SOIL [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
102003	EPA-3050 EPA-7421	Lead	<4.0	ug/g	P BUCKLEY	10123H	27-JAN-1991
132003	EPA-3550	Prep (EPA- SW-846-Sox)	C		JH KREIS	1993	4-JAN-1991

Prep (EPA- SW-846-Sox)

Analyst = JH KREIS
 Date Extracted = 3-JAN-1991
 Sample Weight Extracted (g) = 10.00
 Percent Solids = 100
 Calculated Dried Weight (g) = 10.00
 Extraction Method = Soxhlet
 Extraction Solvent = Methylene Chloride/Acetone
 Extraction Cleanup = Sodium Sulfate
 Final Volume of Extract (mL) = 1
 Associated Blank = 910103-263

Replicate Results of Analysis

Analysis	Replicate		RPD
	Results	Results	
Lead	<4.0	<4.0	0.0

Program Manager: D. L. Amburgey

Date Approved: 7-FEB-1991

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

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ANALIS ID: 901226-051
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >10929
Instrument ID: >5970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-101
Customer: KESSNER/BOOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 0.0
Percent Moisture (decanted):
Associated Blank: 910103-263
[] : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDF
Dilution Factor: 1.0
Analyst: C MEERAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	990U	106-47-8	4-Chloroaniline	990U
111-44-4	bis(2-Chloroethyl)ether	990U	87-68-3	Hexachlorobutadiene	990U
95-57-8	2-Chlorophenol	990U	59-50-7	4-Chloro-3-methylphenol	990U
541-73-1	1,3-Dichlorobenzene	990U	91-57-6	2-Methylnaphthalene	990U
106-46-7	1,4-Dichlorobenzene	990U	77-47-4	Hexachlorocyclopentadiene	990U
100-51-6	Benzyl Alcohol	990U	88-06-2	2,4,6-Trichlorophenol	990U
95-50-1	1,2-Dichlorobenzene	990U	95-95-4	2,4,5-Trichlorophenol	4800U
95-48-7	2-Methylphenol	990U	91-58-7	2-Chloronaphthalene	990U
108-60-1	bis(2-Chloroisopropyl)ether	990U	88-74-4	2-Nitroaniline	4800U
106-44-5	4-Methylphenol	990U	131-11-3	Dimethylphthalate	990U
621-64-7	N-Nitroso-di-n-propylamine	990U	208-96-8	Acenaphthylene	990U
67-72-1	Hexachloroethane	990U	99-09-2	3-Nitroaniline	4800U
98-95-3	Nitrobenzene	990U	83-32-9	Acenaphthene	990U
78-59-1	Isophorene	990U	51-28-5	2,4-Dinitrophenol	4800U
88-75-5	2-Nitrophenol	990U	100-02-7	4-Nitrophenol	4800U
105-67-9	2,4-Dimethylphenol	990U	132-64-9	Dibenzofuran	990U
65-85-0	Benzoic Acid	4800U	121-14-2	2,4-Dinitrotoluene	990U
111-91-1	bis(2-Chloroethoxy)methane	990U	606-20-2	2,6-Dinitrotoluene	990U
120-83-2	2,4-Dichlorophenol	990U	84-66-2	Diethylphthalate	990U
120-82-1	1,2,4-Trichlorobenzene	990U	7005-72-3	4-Chlorophenyl-phenylether	990U
91-20-3	Naphthalene	990U	86-73-7	Fluorene	990U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901226-051
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >10929
 Instrument ID: >5970-3
 Authorized By: D. C. Canada

Customer Sample ID: 27-101
 Customer: KESSNER/ROOS
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
 Preparation Procedure Number: EPA-3550
 Percent Moisture: 0.0
 Percent Moisture (decanted):
 Associated Blank: 910103-263
 {} : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 1.0
 Analyst: C MEERAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4800U	53-70-3	Dibenz(a,h)anthracene	990U
934-52-1	4,6-Dinitro-2-methylphenol	4800U	191-24-2	Benzo(g,h,i)perylene	990U
86-30-6	N-Nitrosodiphenylamine	990U			
101-55-3	4-Bromophenyl-phenylether	990U			
118-74-1	Hexachlorobenzene	990U			
87-86-5	Pentachlorophenol	4800U			
85-01-8	Phenanthrene	990U			
120-12-7	Anthracene	990U			
84-74-2	Di-n-butylphthalate	160 JB			
206-44-0	Fluoranthene	990U			
129-00-0	Pyrene	990U			
85-68-7	Butylbenzylphthalate	990U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	990U			
117-81-7	bis(2-Ethylhexyl)phthalate	180 JB			
218-01-9	Chrysene	990U			
117-84-0	Di-n-octylphthalate	990U			
205-99-2	Benzo(b)fluoranthene	990U			
207-08-9	Benzo(k)fluoranthene	990U			
50-32-8	Benzo(a)pyrene	990U			
193-39-5	Indeno(1,2,3-cd)pyrene	990U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

BVA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TEMPERATURE IDENTIFIED COMPOUNDS

Analysis ID: 901226-051
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 0.0 dec.
Extraction: (Seps/Cont/None) SOIL
GPC Cleanup: (Y/N) N

Customer Sample ID: 27-101
Customer: EESSMER/MOS
File ID: 210929
Date Received: 20-DEC-1990
Date Analyzed: 14-JAN-1991
Date Extracted: 3-JAN-1991
pH: _____

Concentration Units
(ug/L or ug/kg): ug/Lg

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.29	48000	J
2.	123-42-21 2-Pentanol, 4-hydroxy-4-methyl	5.74	8100	JAS
3.	UNKNOWN	12.36	680	JB
4.	PROBANDIC ACID, 2-METHYL, 1(1,1)-	17.97	720	J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable identification.

ANALIS ID: 901226-051
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 07744
Instrument ID: 70-2
Authorized By: D. C. Canada

Customer Sample ID: 27-101
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

VOA - Volatile Organic Compounds (TCL)

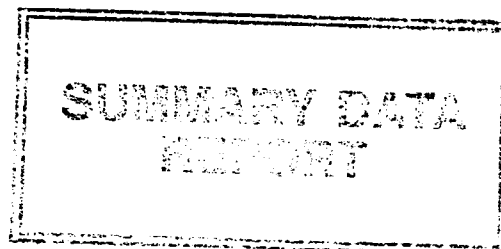
Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture:
Percent Moisture (decanted):
Associated Blank: 901227-032
[] : Result has been Corrected for Spike

Date Analysed: 27-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: LM POTTER
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5U	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	32 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	18 B	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analysed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.



WHC-SD-EN-TI-136, Rev. 0
Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

12

ANALIS ID: 901226-052 Project: G132 027S Customer Sample ID: 27-102
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 18-DEC-1990 Date Sample Received: 20-DEC-1990
Sampled By: Date Sample Completed: 27-JAN-1991
Material Description: SOIL [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
102003	EPA-3050 EPA-7421	Lead	5.8	ug/g	P BUCKLEY	10123H	27-JAN-1991
132803	EPA-3550	Prep (EPA- SW-846-Sox)	C		JH KREIS	1993	4-JAN-1991

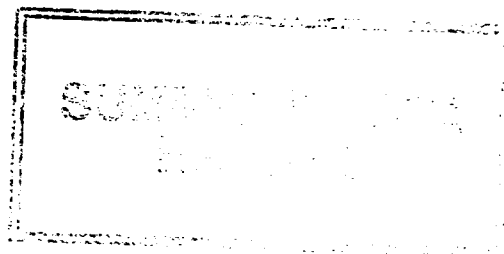
Prep (EPA- SW-846-Sox)

Analyst = JH KREIS
Date Extracted = 3-JAN-1991
Sample Weight Extracted (g) = 10.30
Percent Solids = 92.5
Calculated Dried Weight (g) = 9.53
Extraction Method = Soxhlet
Extraction Solvent = Methylene Chloride/Acetone
Extraction Cleanup = Sodium Sulfate
Final Volume of Extract (mL) = 1
Associated Blank = 910103-263

Spike Recovery Data

Analysis	Amount Spiked	Amount Recovered	Percent Recovered
LEAD	20.0	22.4	112.00

Program Manager: D. L. Amburgey
Date Approved: 7-FEB-1991



SWA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901226-052
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 7.5 dec.
Extraction: (SepF/Cont/Sonc) SonH
GPC Cleanup: (Y/N) N

Customer Sample ID: 27-102
Customer: KESSNER/ROOS
File ID: >10930
Date Received: 20-DEC-1990
Date Analyzed: 14-JAN-1991
Date Extracted: 3-JAN-1991
pH:

Number TICs found: 14

Concentration Units
(ug/L or ug/Kg): ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methy	5.76	8300	JBA
2. 872-50-4	2-Pyrrolidinone, 1-methyl-	9.68	460	J
3.	UNKNOWN	12.37	670	JB
4.	UNKNOWN	16.31	420	J
5.	UNKNOWN SATURATED HYDROCARBON	19.31	450	JB
6. 17851-53-5	1,2-Benzenedicarboxylic acid,b	21.16	940	JB
7.	UNKNOWN SATURATED HYDROCARBON	21.57	790	JB
8.	UNKNOWN PHTHALATE ESTER	21.67	490	JB
9.	UNKNOWN HYDROCARBON	23.62	670	JB
10.	UNKNOWN SATURATED HYDROCARBON	25.49	1800	JB
11.	UNKNOWN	25.63	950	J
12.	UNKNOWN SATURATED HYDROCARBON	26.37	1600	J
13.	UNKNOWN SATURATED HYDROCARBON	28.01	600	JB
14.	UNKNOWN	33.01	770	J
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Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

ANALIS ID: 901226-052
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >07745
Instrument ID: 70-2
Authorized By: D. C. Canada

Customer Sample ID: 27-102
Customer: KESSNER/NOOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

VOC - Volatile Organic Compounds (TCL)

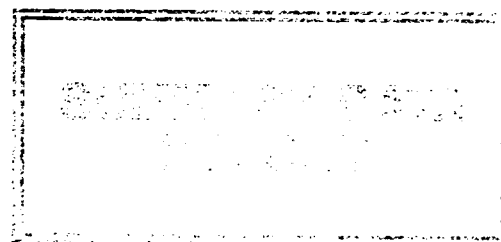
Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture:
Percent Moisture (decanted):
Associated Blank: 901227-032
[] : Result has been Corrected for Spike

Date Analysed: 27-DEC-1990
Analysis Procedure Number: VOC (CLP) NDP
Dilution Factor: 1.0
Analyst: LM POTTER
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	5U	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	10U	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	17 B	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.



VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901226-052

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec.

Customer Sample ID: 27-102

Customer: KESSNER/ROOS

File ID: >07745

Date Received: 20-DEC-1990

Date Analyzed: 27-DEC-1990

Concentration Units

(ug/L or ug/kg): ug/kg

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 64-19-7	Acetic acid	15.82	5	J
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Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not detected.
A - Aldol condensation product.
D - Secondary dilution.
E - Exceeds initial calibration range.
P - Probable Identification.

ANALIS ID: 901226-055 Project: G132 027S Customer Sample ID: 27-103
 Customer: KESSNER/ROOS Requisition Number:
 Date Sampled: 18-DEC-1990 Date Sample Received: 20-DEC-1990
 Sampled By: Date Sample Completed: 27-JAN-1991
 Material Description: SOIL [] : Result has been Corrected for Spike

Activ. Number Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
102003 EPA-3050 EPA-7421	Lead	8.8	ug/g	P BUCKLEY	10123H	27-JAN-1991
132803 EPA-3550	Prep (BNA- SW-846-Sox)	C		JH KREIS	1993	4-JAN-1991

Prep (BNA- SW-846-Sox)

Analyst = JH KREIS
 Date Extracted = 3-JAN-1991
 Sample Weight Extracted (g) = 10.15
 Percent Solids = 93.3
 Calculated Dried Weight (g) = 9.47
 Extraction Method = Soxhlet
 Extraction Solvent = Methylene Chloride/Acetone
 Extraction Cleanup = Sodium Sulfate
 Final Volume of Extract (mL) = 1
 Associated Blank = 910103-263

Program Manager: D. L. Amburgey

Date Approved: 7-FEB-1991

WHC-SD-EN-TI-136, Rev. 0
ANALYSIS DATA REPORT

Page 1 of 2

ANALIS ID: 901226-055
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >10933
Instrument ID: 5970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-103
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 6.7
Percent Moisture (decanted):
Associated Blank: 910103-263
[] : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 2.0
Analyst: C MEERAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	2100U	106-47-8	4-Chloroaniline	2100U
111-44-4	bis(2-Chloroethyl)ether	2100U	87-68-3	Hexachlorobutadiene	2100U
95-57-8	2-Chlorophenol	2100U	59-50-7	4-Chloro-3-methylphenol	2100U
541-73-1	1,3-Dichlorobenzene	2100U	91-57-6	2-Methylnaphthalene	2100U
106-46-7	1,4-Dichlorobenzene	2100U	77-47-4	Hexachlorocyclopentadiene	2100U
100-51-6	Benzyl Alcohol	2100U	88-06-2	2,4,6-Trichlorophenol	2100U
95-50-1	1,2-Dichlorobenzene	2100U	95-95-4	2,4,5-Trichlorophenol	10000U
95-48-7	2-Methylphenol	2100U	91-58-7	2-Chloronaphthalene	2100U
108-60-1	bis(2-Chloroisopropyl)ether	2100U	88-74-4	2-Nitroaniline	10000U
106-44-5	4-Methylphenol	2100U	131-11-3	Dimethylphthalate	2100U
621-64-7	N-Nitroso-di-n-propylamine	2100U	208-96-8	Acenaphthylene	2100U
67-72-1	Hexachloroethane	2100U	99-09-2	3-Nitroaniline	10000U
98-95-3	Nitrobenzene	2100U	83-32-9	Acenaphthene	2100U
78-59-1	Isophorone	2100U	51-28-5	2,4-Dinitrophenol	10000U
88-75-5	2-Nitrophenol	2100U	100-02-7	4-Nitrophenol	10000U
105-67-9	2,4-Dimethylphenol	2100U	132-64-9	Dibenzofuran	2100U
65-85-0	Benzoic Acid	10000U	121-14-2	2,4-Dinitrotoluene	2100U
111-91-1	bis(2-Chloroethoxy)methane	2100U	606-20-2	2,6-Dinitrotoluene	2100U
120-83-2	2,4-Dichlorophenol	2100U	84-66-2	Diethylphthalate	200 B
120-82-1	1,2,4-Trichlorobenzene	2100U	7005-72-3	4-Chlorophenyl-phenylether	2100U
91-20-3	Naphthalene	2100U	86-73-7	Fluorene	2100U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Analysis ID: 901226-055
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >10933
Instrument ID: 5970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-103
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 6.7
Percent Moisture (decanted):
Associated Blank: 910103-263
{ } : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 2.0
Analyst: C MEERAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	10000U	53-70-3	Dibenz(a,h)anthracene	380 J
534-52-1	4,6-Dinitro-2-methylphenol	10000U	191-24-2	Benzo(g,h,i)perylene	2100U
86-30-6	N-Nitrosodiphenylamine	2100U			
101-55-3	4-Bromophenyl-phenylether	2100U			
118-74-1	Hexachlorobenzene	2100U			
87-86-5	Pentachlorophenol	10000U			
85-01-8	Phenanthrene	2100U			
120-12-7	Anthracene	2100U			
84-74-2	Di-n-butylphthalate	3800 B			
206-44-0	Fluoranthene	2100U			
129-00-0	Pyrene	2100U			
85-68-7	Butylbenzylphthalate	2100U			
91-94-1	3,3'-Dichlorobenzidine	4200U			
56-55-3	Benzo(a)anthracene	2100U			
117-81-7	bis(2-Ethylhexyl)phthalate	490 JB			
218-01-9	Chrysene	220 J			
117-84-0	Di-n-octylphthalate	2100U			
205-99-2	Benzo(b)fluoranthene	2100U			
207-08-9	Benzo(k)fluoranthene	210 J			
50-32-8	Benzo(a)pyrene	270 J			
193-39-5	Indeno(1,2,3-cd)pyrene	200 J			

Data Reporting Qualifiers:

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- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

SWA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

Analysis ID: 901226-035 Customer Sample ID: 27-103
Laboratory: Organic Mass Spectroscopy Laboratory Customer: KESSEX/MOS
Sample Matrix: SOIL File ID: 210933
Level: (low/med): LOW Date Received: 20-DEC-1990
Dilution Factor: 2.0 Date Analyzed: 14-JAN-1991
Moisture: not dec. 6.7 dec. Date Extracted: 3-JAN-1991
Extraction: (Soxh/Cont/sonic) SOXH pH:
GPC Cleanup: (Y/N) Y Concentration Units
(ug/L or ug/kg): ug/kg

Number TICs found: 6

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methyl	5.72	8700	JBA
2. <u> </u>	<u>UNKNOWN</u>	12.36	1500	JB
3. <u> </u>	<u>UNKNOWN SATURATED HYDROCARBON</u>	19.32	930	JB
4. <u> </u>	<u>UNKNOWN SATURATED HYDROCARBON</u>	21.56	880	JB
5. <u> </u>	<u>UNKNOWN SATURATED HYDROCARBON</u>	25.48	1300	JB
6. <u> </u>	<u>UNKNOWN SATURATED HYDROCARBON</u>	26.36	1100	JB
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
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30. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- ? - Probable identification.

Analysis ID: 901226-055
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >07748
Instrument ID: 70-2
Authorized By: D. C. Canada

Customer Sample ID: 27-103
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture:
Percent Moisture (decanted):
Associated Blank: 901227-032
[] : Result has been Corrected for Spike

Date Analyzed: 27-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 1.0
Analyst: LM POTTER
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	2 J	108-10-1	4-Methyl-2-pentanone	2 J
67-64-1	Acetone	48 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	14 B	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDSAnalysis ID: 901226-055Laboratory: Organic Mass Spectroscopy LaboratorySample Matrix: SOILLevel: (low/med): LOWDilution Factor: 1.0% Moisture: not dec. Customer Sample ID: 27-103Customer: KESSNER/ROOSFile ID: 07748Date Received: 20-DEC-1990Date Analyzed: 27-DEC-1990

Concentration Units

(ug/L or ug/Kg): ug/KgNumber TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.33	5	J
2.				
3.				
4.				
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Data Reporting Qualifiers:

- U - Compound was analysed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.
 P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

41

ANALYS ID: 901226-056 Project: G132 0278 Customer Sample ID: 27-104
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 18-DEC-1990 Date Sample Received: 20-DEC-1990
Sampled By: Date Sample Completed: 27-JAN-1991
Material Description: SOIL [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
102003	EPA-3050 EPA-7421	Lead	4.8	ug/g	P BUCKLEY	10123H	27-JAN-1991
132803	EPA-3550	Prep (BNA- SW-846-Sox)	C		JH KREIS	1993	4-JAN-1991

Prep (BNA- SW-846-Sox)

Analyst = JH KREIS
Date Extracted = 3-JAN-1991
Sample Weight Extracted (g) = 10.32
Percent Solids = 92.7
Calculated Dried Weight (g) = 9.57
Extraction Method = Soxhlet
Extraction Solvent = Methylene Chloride/Acetone
Extraction Cleanup = Sodium Sulfate
Final Volume of Extract (mL) = 1
Associated Blank = 910103-263

Program Manager: D. L. Amburgey
Date Approved: 7-FEB-1991

ANALIS ID: 901226-056
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >10934
Instrument ID: 9970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-104
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 7.3
Percent Moisture (decanted):
Associated Blank: 910103-263
() : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 5.0
Analyst: C MEERAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	5200U	106-47-8	4-Chloroaniline	5200U
111-44-4	bis(2-Chloroethyl)ether	5200U	87-68-3	Hexachlorobutadiene	5200U
95-57-8	2-Chlorophenol	5200U	59-50-7	4-Chloro-3-methylphenol	5200U
541-73-1	1,3-Dichlorobenzene	5200U	91-57-6	2-Methylnaphthalene	24000
106-46-7	1,4-Dichlorobenzene	5200U	77-47-4	Hexachlorocyclopentadiene	5200U
100-51-6	Benzyl Alcohol	5200U	88-06-2	2,4,6-Trichlorophenol	5200U
95-50-1	1,2-Dichlorobenzene	5200U	95-95-4	2,4,5-Trichlorophenol	26000U
95-48-7	2-Methylphenol	5200U	91-58-7	2-Chloronaphthalene	5200U
108-60-1	bis(2-Chloroisopropyl)ether	5200U	88-74-4	2-Nitroaniline	26000U
106-44-5	4-Methylphenol	5200U	131-11-3	Dimethylphthalate	5200U
621-64-7	N-Nitroso-di-n-propylamine	5200U	208-96-8	Acenaphthylene	5200U
67-72-1	Hexachloroethane	5200U	99-09-2	3-Nitroaniline	26000U
98-95-3	Nitrobenzene	5200U	83-32-9	Acenaphthene	760 J
78-59-1	Isophorone	5200U	51-28-5	2,4-Dinitrophenol	26000U
88-75-5	2-Nitrophenol	5200U	100-02-7	4-Nitrophenol	26000U
105-67-9	2,4-Dimethylphenol	5200U	132-64-9	Dibenzofuran	5200U
65-85-0	Benzoic Acid	26000U	121-14-2	2,4-Dinitrotoluene	5200U
111-91-1	bis(2-Chloroethoxy)methane	5200U	606-20-2	2,6-Dinitrotoluene	5200U
120-83-2	2,4-Dichlorophenol	5200U	84-66-2	Diethylphthalate	5200U
120-82-1	1,2,4-Trichlorobenzene	5200U	7005-72-3	4-Chlorophenyl-phenylether	5200U
91-20-3	Naphthalene	5200U	86-73-7	Fluorene	5200U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901226-056
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >10934
Instrument ID: 5970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-104
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 7.3
Percent Moisture (decanted):
Associated Blank: 910103-263
[] : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 5.0
Analyst: C MEZHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	26000U	53-70-3	Dibenz(a,h)anthracene	560 J
534-52-1	4,6-Dinitro-2-methylphenol	26000U	191-24-2	Benzo(g,h,i)perylene	5200U
86-30-6	N-Nitrosodiphenylamine	5200U			
101-55-3	4-Bromophenyl-phenylether	5200U			
118-74-1	Hexachlorobenzene	5200U			
87-86-5	Pentachlorophenol	26000U			
85-01-8	Phenanthrene	3600 J			
120-12-7	Anthracene	5200U			
84-74-2	Di-n-butylphthalate	3400 J			
206-44-0	Fluoranthene	7200			
129-00-0	Pyrene	7200			
85-68-7	Butylbensylphthalate	5200U			
91-94-1	3,3'-Dichlorobenzidine	10000U			
56-55-3	Benzo(a)anthracene	4100 J			
117-81-7	bis(2-Ethylhexyl)phthalate	1600 J			
218-01-9	Chrysene	6100			
117-84-0	Di-n-octylphthalate	5200U			
205-99-2	Benzo(b)fluoranthene	6000			
207-08-9	Benzo(k)fluoranthene	5200U			
50-32-8	Benzo(a)pyrene	4000 J			
193-39-5	Indeno(1,2,3-cd)pyrene	5200U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

BHA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901226-056

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 5.0

% Moisture: not dec. 7.3 dec.

Extraction: (Sep/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: 27-104

Customer: KESSNER/ROOS

File ID: >10934

Date Received: 20-DEC-1990

Date Analyzed: 14-JAN-1991

Date Extracted: 3-JAN-1991

pH: _____

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 21

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN SATURATED HYDROCARBON	8.19	44000	J
2.	108-67-8 1,3,5-Trimethylbenzene	8.39	46000	J
3.	BENZENE, 1-ETHYL-METHYL	8.56	17000	JY
4.	BENZENE, 1-ETHYL-METHYL	9.41	43000	JY
5.	UNKNOWN SATURATED HYDROCARBON	9.62	40000	J
6.	BENZENE, 1-METHYL-PROPYL	9.98	95000	JY
7.	BENZENE, -ETHYL-DIMETHYL	10.11	61000	JY
8.	BENZENE, -ETHYL-DIMETHYL	10.43	33000	JY
9.	BENZENE, -ETHYL-DIMETHYL	10.47	17000	JY
10.	Benzene, METHYL-METHYLETHYL	10.62	77000	JY
11.	UNKNOWN AROMATIC HYDROCARBON	10.88	8800	J
12.	UNKNOWN AROMATIC HYDROCARBON	11.47	6700	J
13.	UNKNOWN AROMATIC HYDROCARBON	11.58	17000	J
14.	UNKNOWN AROMATIC HYDROCARBON	11.74	23000	J
15.	UNKNOWN AROMATIC HYDROCARBON	11.86	11000	J
16.	UNKNOWN AROMATIC HYDROCARBON	11.96	12000	J
17.	UNKNOWN AROMATIC HYDROCARBON	12.11	6200	J
18.	BENZENE, -DIMETHYL-METHYLETHYL	12.49	16000	JY
19.	UNKNOWN	13.33	6500	J
20.	H-INDENE, 2,3-DIHYDRO-DIMETHYL	13.54	6600	JY
21.	NAPHTHALENE, 1-METHYL	14.37	11000	J
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.
 P - Probable Identification.

ANALIS ID: 901226-056
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: >07775
 Instrument ID: 70-2
 Authorized By: D. C. Canada

Customer Sample ID: 27-104
 Customer: KESSNER/ROOS
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 20-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
 Preparation Procedure Number:
 Percent Moisture:
 Percent Moisture (decanted):
 Associated Blank: 901231-001
 [] : Result has been Corrected for Spike

Date Analysed: 31-DEC-1990
 Analysis Procedure Number: VOA (CLP) NDP
 Dilution Factor: 100.0
 Analyst: LM POTTER
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	1300U	79-00-5	1,1,2-Trichloroethane	630U
74-83-9	Bromomethane	1300U	71-43-2	Benzene	630U
75-01-4	Vinyl Chloride	1300U	10061-02-6	trans-1,3-Dichloropropene	630U
75-00-3	Chloroethane	1300U	75-25-2	Bromoform	630U
75-09-2	Methylene Chloride	260 JB	108-10-1	4-Methyl-2-pentanone	1300U
67-64-1	Acetone	1300U	591-78-6	2-Hexanone	5400
75-15-0	Carbon Disulfide	630U	127-18-4	Tetrachloroethene	630U
75-35-4	1,1-Dichloroethene	630U	79-34-5	1,1,2,2-Tetrachloroethane	630U
75-34-3	1,1-Dichloroethane	630U	108-88-3	Toluene	630U
540-59-0	1,2-Dichloroethene (total)	630U	108-90-7	Chlorobenzene	160 J
67-66-3	Chloroform	630U	100-41-4	Ethylbenzene	630U
107-06-2	1,2-Dichloroethane	630U	100-42-5	Styrene	630U
78-93-3	2-Butanone	1300U	1330-20-7	Xylene (total)	13000
71-55-6	1,1,1-Trichloroethane	630U			
56-23-5	Carbon Tetrachloride	630U			
108-05-4	Vinyl Acetate	1300U			
75-27-4	Bromodichloromethane	630U			
78-87-5	1,2-Dichloropropane	630U			
10061-01-5	cis-1,3-Dichloropropene	630U			
79-01-6	Trichloroethene	630U			
124-48-1	Dibromochloromethane	630U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS

TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901226-056Laboratory: Organic Mass Spectroscopy LaboratorySample Matrix: SOILLevel: (low/med): LOWDilution Factor: 100.0

% Moisture: not dec. _____

Customer Sample ID: 27-104Customer: KESSEMER/ROOSFile ID: >07775Date Received: 20-DEC-1990Date Analyzed: 31-DEC-1990

Concentration Units

(ug/L or ug/kg): ug/kgNumber TICs found: 9

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	13.76	930	J
2.	3-METHYL HEPTANE	14.58	630	J
3.	UNKNOWN HYDROCARBON	16.00	520	J
4.	UNKNOWN HYDROCARBON	17.39	1900	J
5.	UNKNOWN HYDROCARBON	17.55	820	J
6.	UNKNOWN HYDROCARBON	19.09	930	J
7.	UNKNOWN HYDROCARBON	21.30	11000	J
8.	UNKNOWN HYDROCARBON	22.06	2000	J
9.	ETHYL METHYL BENZENE ISOMER	22.45	23000	J
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
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30.				

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 B - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.
 P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0
Oak Ridge K-25 Site
Analytical Chemistry Department
Results of Analyses

50

ANALIS ID: 901226-057 Project: G132 027S Customer Sample ID: 27-105
Customer: KESSNER/ROOS Requisition Number:
Date Sampled: 18-DEC-1990 Date Sample Received: 20-DEC-1990
Sampled By: Date Sample Completed: 27-JAN-1991
Material Description: SOIL [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
102003	EPA-3050 EPA-7421	Lead	4.3	ug/g	P BUCKLEY	10123W	27-JAN-1991
132803	EPA-3550	Prep (EPA- SW-846-Sox)	C		JH KREIS	1993	4-JAN-1991

Prep (EPA- SW-846-Sox)

Analyst = JH KREIS
Date Extracted = 3-JAN-1991
Sample Weight Extracted (g) = 10.60
Percent Solids = 92.5
Calculated Dried Weight (g) = 9.81
Extraction Method = Soxhlet
Extraction Solvent = Methylene Chloride/Acetone
Extraction Cleanup = Sodium Sulfate
Final Volume of Extract (mL) = 1
Associated Blank = 910103-263

***** Comments from the Organic Mass Spectroscopy Laboratory *****

THIS SAMPLE DOES NOT MEET CLP SOW OR LABORATORY QAP CRITERIA FOR SURROGATE STANDARD % RECOVERY FOR EXTRACTABLE ORGANICS. TWO OR MORE SURROGATE STANDARDS WERE OUTSIDE ACCEPTANCE CRITERIA LIMITS DUE TO MATRIX EFFECT AND DILUTION. INTERNAL STANDARD AREAS WERE WITHIN CLP SOW AND LABORATORY QAP ACCEPTANCE CRITERIA.

Program Manager: D. L. Amburgey
Date Approved: 7-FEB-1991

ANALIS ID: 901226-057
 Laboratory: Organic Mass Spectroscopy Laboratory
 File ID: 10935
 Instrument ID: 5970-3
 Authorized By: D. C. Canada

Customer Sample ID: 27-105
 Customer: KESSNER/ROOS
 Sample Matrix: SOIL
 Requisition Number:
 Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
 Preparation Procedure Number: EPA-3550
 Percent Moisture: 7.3
 Percent Moisture (decanted):
 Associated Blank: 910103-263
 {} : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
 Analysis Procedure Number: BNA (CLP) NDP
 Dilution Factor: 5.0
 Analyst: C MEERAN
 QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	5000U	106-47-8	4-Chloroaniline	5000U
111-44-4	bis(2-Chloroethyl)ether	5000U	87-68-3	Hexachlorobutadiene	5000U
95-57-8	2-Chlorophenol	5000U	59-50-7	4-Chloro-3-methylphenol	5000U
541-73-1	1,3-Dichlorobenzene	5000U	91-57-6	2-Methylnaphthalene	35000
106-46-7	1,4-Dichlorobenzene	5000U	77-47-4	Hexachlorocyclopentadiene	5000U
100-51-6	Benzyl Alcohol	5000U	88-06-2	2,4,6-Trichlorophenol	5000U
95-50-1	1,2-Dichlorobenzene	5000U	95-95-4	2,4,5-Trichlorophenol	24000U
95-48-7	2-Methylphenol	5000U	91-58-7	2-Chloronaphthalene	5000U
108-60-1	bis(2-Chloroisopropyl)ether	5000U	88-74-4	2-Nitroaniline	24000U
106-44-5	4-Methylphenol	5000U	131-11-3	Dimethylphthalate	5000U
621-64-7	N-Nitroso-di-n-propylamine	5000U	208-96-8	Acenaphthylene	5000U
67-72-1	Hexachloroethane	5000U	99-09-2	3-Nitroaniline	24000U
98-95-3	Nitrobenzene	5000U	83-32-9	Acenaphthene	2000 J
78-59-1	Isophorone	5000U	51-28-5	2,4-Dinitrophenol	24000U
88-75-5	2-Nitrophenol	5000U	100-02-7	4-Nitrophenol	24000U
105-67-9	2,4-Dimethylphenol	5000U	132-64-9	Dibenzofuran	5000U
65-85-0	Benzoic Acid	24000U	121-14-2	2,4-Dinitrotoluene	5000U
111-91-1	bis(2-Chloroethoxy)methane	5000U	606-20-2	2,6-Dinitrotoluene	5000U
120-83-2	2,4-Dichlorophenol	5000U	84-66-2	Diethylphthalate	5000U
120-82-1	1,2,4-Trichlorobenzene	5000U	7005-72-3	4-Chlorophenyl-phenylether	5000U
91-20-3	Naphthalene	5000U	86-73-7	Fluorene	940 J

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901226-057
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 10935
Instrument ID: 5970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-105
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 7.5
Percent Moisture (decanted):
Associated Blank: 910103-263
[] : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 5.0
Analyst: C MEEHAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	24000U	53-70-3	Dibenz(a,h)anthracene	1900 J
534-52-1	4,6-Dinitro-2-methylphenol	24000U	191-24-2	Benzo(g,h,i)perylene	5000U
86-30-6	N-Nitrosodiphenylamine	5000U			
101-55-3	4-Bromophenyl-phenylether	5000U			
118-74-1	Hexachlorobenzene	5000U			
87-86-5	Pentachlorophenol	24000U			
85-01-8	Phenanthrene	9600			
120-12-7	Anthracene	2300 J			
84-74-2	Di-n-butylphthalate	3000 JB			
206-44-0	Fluoranthene	18000			
129-00-0	Pyrene	18000			
85-68-7	Butylbenzylphthalate	5000U			
91-94-1	3,3'-Dichlorobenzidine	10000U			
56-55-3	Benzo(a)anthracene	12000			
117-81-7	bis(2-Ethylhexyl)phthalate	5000U			
218-01-9	Chrysene	15000			
117-84-0	Di-n-octylphthalate	5000U			
205-99-2	Benzo(b)fluoranthene	12000			
207-08-9	Benzo(k)fluoranthene	4400 J			
50-32-8	Benzo(a)pyrene	10000			
193-39-5	Indeno(1,2,3-cd)pyrene	1200 J			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

EPA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS

TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901226-057

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 5.0

% Moisture: not dec. 7.5 dec.

Extraction: (Sep/Cont/Sonc) SoxH

GPC Cleanup: (Y/N) N

Customer Sample ID: 27-105

Customer: KESSNER/ROOS

File ID: 10935

Date Received: 20-DEC-1990

Date Analyzed: 14-JAN-1991

Date Extracted: 3-JAN-1991

pH: _____

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 21

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	OCTANE, 2,2,6-TRIMETHYL-	8.23	75000	J
2.	526-73-8 1,2,3-Trimethylbenzene	8.43	74000	J
3.	BENZENE, 1-ETHYL-METHYL	8.59	27000	JY
4.	UNKNOWN SATURATED HYDROCARBON	8.82	28000	J
5.	UNKNOWN SATURATED HYDROCARBON	9.65	61000	J
6.	UNKNOWN AROMATIC HYDROCARBON	10.04	140000	J
7.	UNKNOWN	10.16	70000	J
8.	UNKNOWN SATURATED HYDROCARBON	10.23	32000	J
9.	BENZENE, -DIETHYL	10.47	52000	JY
10.	UNKNOWN	10.65	53000	J
11.	UNKNOWN AROMATIC HYDROCARBON	10.92	10000	J
12.	UNKNOWN SATURATED HYDROCARBON	11.23	29000	J
13.	UNKNOWN	11.51	9800	J
14.	UNKNOWN	11.59	17000	J
15.	UNKNOWN AROMATIC HYDROCARBON	11.80	27000	J
16.	UNKNOWN AROMATIC HYDROCARBON	11.90	18000	J
17.	UNKNOWN AROMATIC HYDROCARBON	12.00	13000	J
18.	BENZENE, -DIMETHYL-METHYLETHYL	12.51	19000	JY
19.	UNKNOWN AROMATIC HYDROCARBON	13.09	7900	J
20.	1H-INDENE, 2,3-DIHYDRO-DIMETHYL	13.37	10000	JY
21.	UNKNOWN	14.39	14000	J
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Data Reporting Qualifiers:

U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.

B - Analyte was found in the reagent blank as well as the sample.

J - Indicates an estimated value.

ND - Not detected.

A - Aldol condensation product.

D - Secondary dilution.

E - Exceeds initial calibration range.

P - Probable Identification.

ANALYSIS ID: 901226-057
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: 087778
Instrument ID: 70-2
Authorized By: D. C. Canada

Customer Sample ID: 27-105
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:
Preparation Procedure Number:
Percent Moisture:
Percent Moisture (decanted):
Associated Blank: 901231-001
[] : Result has been Corrected for Spike

Date Analyzed: 31-DEC-1990
Analysis Procedure Number: VOA (CLP) NDP
Dilution Factor: 100.0
Analyst: LM POTTER
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	1300U	79-00-5	1,1,2-Trichloroethane	630U
74-83-9	Bromomethane	1300U	71-43-2	Benzene	630U
75-01-4	Vinyl Chloride	1300U	10061-02-6	trans-1,3-Dichloropropene	630U
75-00-3	Chloroethane	1300U	75-25-2	Bromoform	630U
75-09-2	Methylene Chloride	260 JB	108-10-1	4-Methyl-2-pentanone	1300U
67-64-1	Acetone	1300U	591-78-6	2-Hexanone	10000
75-15-0	Carbon Disulfide	630U	127-18-4	Tetrachloroethene	630U
75-35-4	1,1-Dichloroethene	630U	79-34-5	1,1,2,2-Tetrachloroethane	630U
75-34-3	1,1-Dichloroethane	630U	108-88-3	Toluene	630U
340-59-0	1,2-Dichloroethene (total)	630U	108-90-7	Chlorobenzene	630U
67-66-3	Chloroform	630U	100-41-4	Ethylbenzene	630U
107-06-2	1,2-Dichloroethane	630U	100-42-5	Styrene	630U
78-93-3	2-Butanone	1300U	1330-20-7	Xylene (total)	17000
71-55-6	1,1,1-Trichloroethane	630U			
56-23-5	Carbon Tetrachloride	630U			
108-05-4	Vinyl Acetate	1300U			
75-27-4	Bromodichloromethane	630U			
78-87-5	1,2-Dichloropropane	630U			
10061-01-5	cis-1,3-Dichloropropene	630U			
79-01-6	Trichloroethene	630U			
124-48-1	Dibromochloromethane	630U			

Data Reporting Qualifiers:

- U - Compound was analysed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDSANALIS ID: 901226-057Laboratory: Organic Mass Spectroscopy LaboratorySample Matrix: SOILLevel: (low/med): LOWDilution Factor: 100.0

% Moisture: not dec. _____

Customer Sample ID: 27-105Customer: KESSNER/ROOSFile ID: >07778Date Received: 20-DEC-1990Date Analyzed: 31-DEC-1990

Concentration Units

(ug/L or ug/Kg): ug/KgNumber TICs found: 6

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	2,4-DIMETHYL HEXANE	13.14	1200	J
2.	2,3,4 TRIMETHYL PENTANE	13.75	3500	J
3.	3-METHYL HEPTANE	14.57	960	J
4.	UNKNOWN HYDROCARBON	17.57	1400	J
5.	UNKNOWN HYDROCARBON	21.31	12000	J
6.	UNKNOWN	16.55	36000	J
7.				
8.				
9.				
10.				
11.				
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30.				

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
B - Analyte was found in the reagent blank as well as the sample.
J - Indicates an estimated value.
ND - Not detected.
A - Aldol condensation product.
D - Secondary dilution.
E - Exceeds initial calibration range.
P - Probable Identification.

Analytical Chemistry Department

Results of Analyses

ANALIS ID: 901226-058 Project: G132 027S Customer Sample ID: 27-106
 Customer: KESSNER/ROOS Requisition Number:
 Date Sampled: 18-DEC-1990 Date Sample Received: 20-DEC-1990
 Sampled By: Date Sample Completed: 27-JAN-1991
 Material Description: SOIL [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
102003	EPA-3050 EPA-7421	Lead	4.2	ug/g	P BUCKLEY	10123H	27-JAN-1991
132803	EPA-3550	Prep (EPA- SW-846-Sox)	C		JH KREIS	1993	4-JAN-1991

Prep (EPA- SW-846-Sox)

Analyst = JH KREIS
 Date Extracted = 3-JAN-1991
 Sample Weight Extracted (g) = 10.90
 Percent Solids = 91.5
 Calculated Dried Weight (g) = 9.97
 Extraction Method = Soxhlet
 Extraction Solvent = Methylene Chloride/Acetone
 Extraction Cleanup = Sodium Sulfate
 Final Volume of Extract (mL) = 1
 Associated Blank = 910103-263

Program Manager: D. L. Amburgey

Date Approved: 7-FEB-1991

ANALIS ID: 901226-058
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >10936
Instrument ID: 5970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-106
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 8.5
Percent Moisture (decanted):
Associated Blank: 910103-263

Date Analysed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C. MEENAN
QA File Number: NA

[] : Result has been Corrected for Spike

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	980U	106-47-8	4-Chloroaniline	980U
111-44-4	bis(2-Chloroethyl)ether	980U	87-68-3	Hexachlorobutadiene	980U
95-57-8	2-Chlorophenol	980U	59-50-7	4-Chloro-3-methylphenol	980U
541-73-1	1,3-Dichlorobenzene	980U	91-57-6	2-Methylnaphthalene	980U
106-46-7	1,4-Dichlorobenzene	980U	77-47-4	Hexachlorocyclopentadiene	980U
100-51-6	Benzyl Alcohol	980U	88-06-2	2,4,6-Trichlorophenol	980U
95-50-1	1,2-Dichlorobenzene	980U	95-95-4	2,4,5-Trichlorophenol	4900U
95-48-7	2-Methylphenol	980U	91-58-7	2-Chloronaphthalene	980U
108-60-1	bis(2-Chloroisopropyl)ether	980U	88-74-4	2-Nitroaniline	4900U
106-44-5	4-Methylphenol	980U	131-11-3	Dimethylphthalate	980U
621-64-7	N-Nitroso-di-n-propylamine	980U	208-96-8	Acenaphthylene	980U
67-72-1	Hexachloroethane	980U	99-09-2	3-Nitroaniline	4900U
98-95-3	Nitrobenzene	980U	83-32-9	Acenaphthene	980U
78-59-1	Isophorone	980U	51-28-5	2,4-Dinitrophenol	4900U
88-75-5	2-Nitrophenol	980U	100-02-7	4-Nitrophenol	4900U
105-67-9	2,4-Dimethylphenol	980U	132-64-9	Dibenzofuran	980U
65-85-0	Benzoic Acid	140 J	121-14-2	2,4-Dinitrotoluene	980U
111-91-1	bis(2-Chloroethoxy)methane	980U	606-20-2	2,6-Dinitrotoluene	980U
120-83-2	2,4-Dichlorophenol	980U	84-66-2	Diethylphthalate	170 JB
120-82-1	1,2,4-Trichlorobenzene	980U	7005-72-3	4-Chlorophenyl-phenylether	980U
91-20-3	Naphthalene	980U	86-73-7	Fluorene	980U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

ANALIS ID: 901226-058
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >10936
Instrument ID: 5970-3
Authorized By: D. C. Canada

Customer Sample ID: 27-106
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

BNA - Base/Neutral/Acid Compounds (TCL)

Date Extracted/Prepared: 3-JAN-1991
Preparation Procedure Number: EPA-3550
Percent Moisture: 8.5
Percent Moisture (decanted):
Associated Blank: 910103-263
[] : Result has been Corrected for Spike

Date Analyzed: 14-JAN-1991
Analysis Procedure Number: BNA (CLP) NDP
Dilution Factor: 1.0
Analyst: C MEERAN
QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	4900U	53-70-3	Dibenz(a,h)anthracene	980U
534-52-1	4,6-Dinitro-2-methylphenol	4900U	191-24-2	Benzo(g,h,i)perylene	980U
86-30-6	N-Nitrosodiphenylamine	980U			
101-55-3	4-Bromophenyl-phenylether	980U			
118-74-1	Hexachlorobenzene	980U			
87-86-5	Pentachlorophenol	4900U			
85-01-8	Phenanthrene	980U			
120-12-7	Anthracene	980U			
84-74-2	Di-n-butylphthalate	3700 B			
206-44-0	Fluoranthene	980U			
129-00-0	Pyrene	980U			
85-68-7	Butylbenzylphthalate	980U			
91-94-1	3,3'-Dichlorobenzidine	2000U			
56-55-3	Benzo(a)anthracene	980U			
117-81-7	bis(2-Ethylhexyl)phthalate	410 JB			
218-01-9	Chrysene	980U			
117-84-0	Di-n-octylphthalate	980U			
205-99-2	Benzo(b)fluoranthene	980U			
207-08-9	Benzo(k)fluoranthene	980U			
50-32-8	Benzo(a)pyrene	980U			
193-39-5	Indeno(1,2,3-cd)pyrene	980U			

Data Reporting Qualifiers:

- U - Compound was analysed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

SWA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901226-058
Laboratory: Organic Mass Spectroscopy Laboratory
Sample Matrix: SOIL
Level: (Low/med): LOW
Dilution Factor: 1.0
% Moisture: not dec. 8.5 dec. _____
Extraction: (SopH/Cont/3onc) SOIL
GPC Cleanup: (Y/N) N
Customer Sample ID: 27-106
Customer: KESSENER/BOOS
File ID: 210936
Date Received: 20-DEC-1990
Date Analyzed: 14-JAN-1991
Date Extracted: 3-JAN-1991
pH: _____

Number TICs found: 14

Concentration Units
(ug/L or ug/kg): ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentadecene, 4-hydroxy-4-methyl	5.79	9700	JBA
2. _____	UNKNOWN	14.84	1100	J
3. _____	UNKNOWN	15.17	410	J
4. _____	UNKNOWN SATURATED HYDROCARBON	15.35	750	JB
5. _____	9H-FLUORENE, -METHYL	16.31	610	JT
6. _____	UNKNOWN	16.96	690	JB
7. 17631-53-5	1,2-Benzene dicarboxylic acid, b	21.17	730	JB
8. _____	UNKNOWN	21.48	1200	J
9. _____	UNKNOWN SATURATED HYDROCARBON	21.56	590	JB
10. _____	UNKNOWN	22.83	680	JB
11. _____	HEPTADECANE, 2,6,10,14-TETRAMETHYL	23.61	1100	JB
12. _____	UNKNOWN SATURATED HYDROCARBON	25.48	780	JB
13. _____	OCTADECANE, 5,14-DIBUTYL-	26.36	700	JB
14. _____	UNKNOWN	32.77	1200	J
15. _____	_____	_____	_____	_____
16. _____	_____	_____	_____	_____
17. _____	_____	_____	_____	_____
18. _____	_____	_____	_____	_____
19. _____	_____	_____	_____	_____
20. _____	_____	_____	_____	_____
21. _____	_____	_____	_____	_____
22. _____	_____	_____	_____	_____
23. _____	_____	_____	_____	_____
24. _____	_____	_____	_____	_____
25. _____	_____	_____	_____	_____
26. _____	_____	_____	_____	_____
27. _____	_____	_____	_____	_____
28. _____	_____	_____	_____	_____
29. _____	_____	_____	_____	_____
30. _____	_____	_____	_____	_____

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.
- P - Probable Identification.

Analysis ID: 901226-058
Laboratory: Organic Mass Spectroscopy Laboratory
File ID: >07779
Instrument ID: 70-2
Authorized By: D. C. Canada

Customer Sample ID: 27-106
Customer: KESSNER/ROOS
Sample Matrix: SOIL
Requisition Number:
Date Sample Received: 20-DEC-1990

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:

Preparation Procedure Number:

Percent Moisture:

Percent Moisture (decanted):

Associated Blank: 901231-001

[] : Result has been Corrected for Spike

Date Analyzed: 31-DEC-1990

Analysis Procedure Number: VOA (CLP) NDP

Dilution Factor: 1.0

Analyst: LM POTTER

QA File Number: NA

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	13U	79-00-5	1,1,2-Trichloroethane	6U
74-83-9	Bromomethane	13U	71-43-2	Benzene	6U
75-01-4	Vinyl Chloride	13U	10061-02-6	trans-1,3-Dichloropropene	6U
75-00-3	Chloroethane	13U	75-25-2	Bromoform	6U
75-09-2	Methylene Chloride	260 JB	108-10-1	4-Methyl-2-pentanone	13U
67-64-1	Acetone	13U	591-78-6	2-Hexanone	13U
75-15-0	Carbon Disulfide	6U	127-18-4	Tetrachloroethene	6U
75-35-4	1,1-Dichloroethane	6U	79-34-3	1,1,2,2-Tetrachloroethane	6U
75-34-3	1,1-Dichloroethane	6U	108-88-3	Toluene	6U
540-59-0	1,2-Dichloroethane (total)	6U	108-90-7	Chlorobenzene	6U
67-66-3	Chloroform	6U	100-41-4	Ethylbenzene	6U
107-06-2	1,2-Dichloroethane	6U	100-42-5	Styrene	6U
78-93-3	2-Butanone	13U	1330-20-7	Xylene (total)	6U
71-55-6	1,1,1-Trichloroethane	6U			
56-23-5	Carbon Tetrachloride	6U			
108-05-4	Vinyl Acetate	13U			
75-27-4	Bromodichloromethane	6U			
78-87-5	1,2-Dichloropropene	6U			
10061-01-5	cis-1,3-Dichloropropene	6U			
79-01-6	Trichloroethene	6U			
124-48-1	Dibromochloromethane	6U			

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

VOA (TCL) SOIL ORGANICS ANALYSIS DATA SHEETS
TENTATIVELY IDENTIFIED COMPOUNDS

ANALIS ID: 901226-058

Laboratory: Organic Mass Spectroscopy Laboratory

Sample Matrix: SOIL

Level: (low/med): LOW

Dilution Factor: 1.0

% Moisture: not dec.

Customer Sample ID: 27-106

Customer: KESSNER/ROOS

File ID: 07779

Date Received: 20-DEC-1990

Date Analyzed: 31-DEC-1990

Concentration Units

(ug/L or ug/Kg): ug/Kg

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	15.36	1200	J
2.	UNKNOWN	17.96	4700	J
3.	UNKNOWN	16.22	64000	J
4.	UNKNOWN	18.77	140000	J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
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27.				
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29.				
30.				

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
 S - Analyte was found in the reagent blank as well as the sample.
 J - Indicates an estimated value.
 ND - Not detected.
 A - Aldol condensation product.
 D - Secondary dilution.
 E - Exceeds initial calibration range.
 P - Probable Identification.

WHC-SD-EN-TI-136, Rev. 0

WHC-SD-EN-TI-136, Rev. 0

TANK 100-N-SS-28

Sample Dates July 16, 1991 and July 17, 1991

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WHC-SD-EN-TI-136, Rev. 0



WHC-SD-EN-TI-136, Rev 0

ANALYTICAL REPORT

AMENDED

Form ARF-AL

Page 1 of 2

Part 1 of 1

Date

5-20-93

Agency Identification Number S91-0513-CD

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

FAX (509) 372-2106
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site 100N-SS-28 Date of Collection July 16, 1991

Date Samples Received at Laboratory July 19, 1991

Analysis

Method of Analysis Ca DHS

Date(s) of Analysis July 31, 1991

Analytical Results

			TPH-Diesel mg/g								
8002P2	EX 2605	SOIL	0.20								
8002P3	EX 2606	SOIL	11.								
8002P4	EX 2607	SOIL	10.								
8002P6	EX 2609	SOIL	ND*								
8002N6	EX 2611	SOIL	0.05								
8002N7	EX 2612	SOIL	0.24								
8002N7 DUP	EX 2613	SOIL	0.18								
8002P0	EX 2614	SOIL	ND*								
8002P1	EX 2615	SOIL	2.8								

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
() Parameter between LOD and LoQ.

Analyst Lawrence E. Miller

Reviewer:

Laboratory Supervisor:

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company



WHC-SD-EN-TI-136, Rev 0
ANALYTICAL REPORT

Form ARF-C
Page 2 of 2

AMENDED

Date _____
Agency Identification Number S91-0513-CD

General Set Comments

The control spike had 63 % recovery.

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

D-228

ANALYTICAL REPORT FOR SAMPLE No. EK2611

Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B00ZN6 Sponsor WESTINGHOUSE HANFORD CO
 File ID KM90EK2611 Date of Analysis 07/26/91 Date Received 07/19/91
 DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	U	1.6*
74-83-9	bromomethane	U	1.5*
75-01-4	vinyl chloride	U	1.7*
75-00-3	chloroethane	U	1.4*
75-09-2	methylene chloride	U	1.6*
67-64-1	acetone	U	4.3*
75-15-0	carbon disulfide	U	1.6*
75-69-4	trichlorofluoromethane	U	1.5*
75-35-4	1,1-dichloroethene	U	1.2*
75-34-3	1,1-dichloroethane	U	2.1*
540-59-0	total 1,2-dichloroethene	U	1.2*
76-66-3	chloroform	U	1.8*
107-06-2	1,2-dichloroethane	U	2.4*
74-88-4	iodomethane	U	1.5*
107-02-8	acrolein	U	58.*
107-13-1	acrylonitrile	U	43.*
78-93-3	2-butanone	U	3.8*
71-55-6	1,1,1-trichloroethane	U	1.6*
56-23-5	carbon tetrachloride	U	1.5*
108-05-4	vinyl acetate	U	3.5*
75-27-4	bromodichloromethane	U	1.8*
78-87-5	1,2-dichloropropane	U	2.0*
10061-02-5	cis-1,3-dichloropropene	U	3.1*
79-01-6	trichloroethene	U	1.3*
71-43-2	benzene	U	1.6*
124-48-1	dibromochloromethane	U	1.4*
79-00-5	1,1,2-trichloroethane	U	1.1*
10061-02-6	trans-1,3-dichloropropene	U	2.9*
110-75-8	2-chloroethylvinyl ether	U	3.3*
75-25-2	bromoform	U	1.2*
74-95-3	dibromomethane	U	2.5*
764-41-0	trans-1,4-dichloro-2-butene	U	1.7*
108-10-1	4-methyl-2-pentanone	U	3.5*
96-18-4	1,2,3-trichloropropane	U	2.3*
591-78-6	2-hexanone	U	4.1*
79-34-5	1,1,2,2-tetrachloroethane	U	2.0*
127-18-4	tetrachloroethene	U	1.5*
97-63-2	ethyl methacrylate	U	1.9*
108-88-3	toluene	U	1.5*
108-90-7	chlorobenzene	U	1.3*
100-41-4	ethylbenzene	U	1.4*
100-42-5	styrene	U	1.2*
1330-20-7	total xylene	U	1.0*

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* current DataChem detection limit

ANALYTICAL REPORT FOR SAMPLE No. EK2612Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B00ZN7 Sponsor WESTINGHOUSE HANFORD CO
 File ID KM99EK2612 Date of Analysis 07/27/91 Date Received 07/19/91
 DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	<u>U</u>	3.2*
74-83-9	bromomethane	<u>U</u>	3.0*
75-01-4	vinyl chloride	<u>U</u>	3.4*
75-00-3	chloroethane	<u>U</u>	2.8*
75-09-2	methylene chloride	<u>U</u>	3.2*
67-64-1	acetone	<u>7.6</u>	8.6*
75-15-0	carbon disulfide	<u>U</u>	3.2*
75-69-4	trichlorofluoromethane	<u>U</u>	3.0*
75-35-4	1,1-dichloroethene	<u>U</u>	2.4*
75-34-3	1,1-dichloroethane	<u>U</u>	4.2*
540-59-0	total 1,2-dichloroethene	<u>U</u>	2.4*
76-66-3	chloroform	<u>U</u>	3.8*
107-06-2	1,2-dichloroethane	<u>U</u>	4.8*
74-88-4	iodomethane	<u>U</u>	3.0*
107-02-8	acrolein	<u>U</u>	116.*
107-13-1	acrylonitrile	<u>U</u>	86.*
78-93-3	2-butanone	<u>U</u>	7.6*
71-55-6	1,1,1-trichloroethane	<u>U</u>	3.2*
56-23-5	carbon tetrachloride	<u>U</u>	3.0*
108-05-4	vinyl acetate	<u>U</u>	7.0*
75-27-4	bromodichloromethane	<u>U</u>	3.6*
78-87-5	1,2-dichloropropane	<u>U</u>	4.0*
10061-02-5	cis-1,3-dichloropropene	<u>U</u>	6.2*
79-01-6	trichloroethene	<u>U</u>	2.6*
71-43-2	benzene	<u>U</u>	3.2*
124-48-1	dibromochloromethane	<u>U</u>	2.8*
79-00-5	1,1,2-trichloroethane	<u>U</u>	2.2*
10061-02-6	trans-1,3-dichloropropene	<u>U</u>	5.8*
110-75-8	2-chloroethylvinyl ether	<u>U</u>	6.6*
75-25-2	bromoform	<u>U</u>	2.4*
74-95-3	dibromomethane	<u>U</u>	5.0*
764-41-0	trans-1,4-dichloro-2-butene	<u>U</u>	3.4*
108-10-1	4-methyl-2-pentanone	<u>U</u>	7.0*
96-18-4	1,2,3-trichloropropane	<u>U</u>	4.6*
591-78-6	2-hexanone	<u>U</u>	8.2*
79-34-5	1,1,2,2-tetrachloroethane	<u>U</u>	4.0*
127-18-4	tetrachloroethene	<u>U</u>	3.0*
97-63-2	ethyl methacrylate	<u>U</u>	3.8*
108-88-3	toluene	<u>U</u>	3.0*
108-90-7	chlorobenzene	<u>U</u>	2.6*
100-41-4	ethylbenzene	<u>U</u>	2.8*
100-42-5	styrene	<u>U</u>	2.4*
1330-20-7	total xylene	<u>1000.</u>	2.0*

D-231

* current DataChem detection limit

NON-TARGET ANALYTE RESULTS

Additional Volatiles

Field Sample ID B00ZN7

[illegible]

FOOTNOTES

- B The analyte was found in the method blank. The reported results have been adjusted for the quantity found in the blank.
- E The reported concentration is an estimate only. The response factor was assumed to be 1.000 relative to an internal standard.
- J Indicates an estimated concentration below the Method Detection Limit.
- K The isomer is unknown.
- N Analytical standards were not analyzed for this compound.
- U Not detected.
- W The identification is tentative or closely related to the compound.

ANALYTICAL REPORT FOR SAMPLE No. EK2614

Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B00ZP0 Sponsor WESTINGHOUSE HANFORD CO
 File ID KM89EK2614 Date of Analysis 07/26/91 Date Received 07/19/91
 DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	U	1.6*
74-83-9	bromomethane	U	1.5*
75-01-4	vinyl chloride	U	1.7*
75-00-3	chloroethane	U	1.4*
75-09-2	methylene chloride	U	1.6*
67-64-1	acetone	U	4.3*
75-15-0	carbon disulfide	U	1.6*
75-69-4	trichlorofluoromethane	U	1.5*
75-35-4	1,1-dichloroethene	U	1.2*
75-34-3	1,1-dichloroethane	U	2.1*
540-59-0	total 1,2-dichloroethene	U	1.2*
76-66-3	chloroform	U	1.8*
107-06-2	1,2-dichloroethane	U	2.4*
74-88-4	iodomethane	U	1.5*
107-02-8	acrolein	U	58.*
107-13-1	acrylonitrile	U	43.*
78-93-3	2-butanone	U	3.8*
71-55-6	1,1,1-trichloroethane	U	1.6*
56-23-5	carbon tetrachloride	U	1.5*
108-05-4	vinyl acetate	U	3.5*
75-27-4	bromodichloromethane	U	1.8*
78-87-5	1,2-dichloropropane	U	2.0*
10061-02-5	cis-1,3-dichloropropene	U	3.1*
79-01-6	trichloroethene	U	1.3*
71-43-2	benzene	U	1.6*
124-48-1	dibromochloromethane	U	1.4*
79-00-5	1,1,2-trichloroethane	U	1.1*
10061-02-6	trans-1,3-dichloropropene	U	2.9*
110-75-8	2-chloroethylvinyl ether	U	3.3*
75-25-2	bromoform	U	1.2*
74-95-3	dibromomethane	U	2.5*
764-41-0	trans-1,4-dichloro-2-butene	U	1.7*
108-10-1	4-methyl-2-pentanone	U	3.5*
96-18-4	1,2,3-trichloropropane	U	2.3*
591-78-6	2-hexanone	U	4.1*
79-34-5	1,1,2,2-tetrachloroethane	U	2.0*
127-18-4	tetrachloroethene	U	1.5*
97-63-2	ethyl methacrylate	U	1.9*
108-88-3	toluene	U	1.5*
108-90-7	chlorobenzene	U	1.3*
100-41-4	ethylbenzene	U	1.4*
100-42-5	styrene	U	1.2*
1330-20-7	total xylene	U	1.0*

D-233

* current DataChem detection limit

NON-TARGET ANALYTE RESULTS

Additional Volatiles

Field Sample ID B00ZP0

[illegible]

B	The analyte was found in the method blank. The reported results have been adjusted for the quantity found in the blank.
E	The reported concentration is an estimate only. The response factor was assumed to be 1.000 relative to an internal standard.
J	Indicates an estimated concentration below the Method Detection Limit.
K	The isomer is unknown.
N	Analytical standards were not analyzed for this compound.
U	Not detected.
W	The identification is tentative or closely related to the compound.

ANALYTICAL REPORT FOR SAMPLE No. EK2615

Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B002P1 Sponsor WESTINGHOUSE HANFORD CO
 File ID KN17EK2615 Date of Analysis 07/27/91 Date Received 07/19/91
 DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	U	4000.*
74-83-9	bromomethane	U	3800.*
75-01-4	vinyl chloride	U	4300.*
75-00-3	chloroethane	U	3500.*
75-09-2	methylene chloride	U	4000.*
67-64-1	acetone	42000.	11000.*
75-15-0	carbon disulfide	U	4000.*
75-69-4	trichlorofluoromethane	U	3800.*
75-35-4	1,1-dichloroethene	U	3000.*
75-34-3	1,1-dichloroethane	U	5300.*
540-59-0	total 1,2-dichloroethene	U	3000.*
76-66-3	chloroform	U	4500.*
107-06-2	1,2-dichloroethane	U	6000.*
74-88-4	iodomethane	U	3800.*
107-02-8	acrolein	U	150000.*
107-13-1	acrylonitrile	U	110000.*
78-93-3	2-butanone	B	9500.*
71-55-6	1,1,1-trichloroethane	U	4000.*
56-23-5	carbon tetrachloride	U	3800.*
108-05-4	vinyl acetate	U	8800.*
75-27-4	bromodichloromethane	U	4500.*
78-87-5	1,2-dichloropropane	U	5000.*
10061-02-5	cis-1,3-dichloropropene	U	7800.*
79-01-6	trichloroethene	U	3300.*
71-43-2	benzene	20000.	4000.*
124-48-1	dibromochloromethane	U	3500.*
79-00-5	1,1,2-trichloroethane	U	2800.*
10061-02-6	trans-1,3-dichloropropene	U	7300.*
110-75-8	2-chloroethylvinyl ether	U	8300.*
75-25-2	bromoform	U	3000.*
74-95-3	dibromomethane	U	6300.*
764-41-0	trans-1,4-dichloro-2-butene	U	4300.*
108-10-1	4-methyl-2-pentanone	U	8800.*
96-18-4	1,2,3-trichloropropane	U	5800.*
591-78-6	2-hexanone	U	10000.*
79-34-5	1,1,2,2-tetrachloroethane	U	5000.*
127-18-4	tetrachloroethene	U	3800.*
97-63-2	ethyl methacrylate	U	4800.*
108-88-3	toluene	350000.	3800.*
108-90-7	chlorobenzene	U	3300.*
100-41-4	ethylbenzene	100000.	3500.*
100-42-5	styrene	U	3000.*
1330-20-7	total xylene	1300000.	2500.*

D-235

* current DataChem detection limit

NON-TARGET ANALYTE RESULTS

Additional Volatiles

Scan	Results
Number	ug/KG Footnotes

[illegible]

B The analyte was found in the method blank. The reported results have been adjusted for the quantity found in the blank.

E The reported concentration is an estimate only. The response factor was assumed to be 1.000 relative to an internal standard.

J Indicates an estimated concentration below the Method Detection Limit.

K The isomer is unknown.

N Analytical standards were not analyzed for this compound.

U Not detected.

W The identification is tentative or closely related to the compound.

ANALYTICAL REPORT FOR SAMPLE No. EK2605Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B00ZP2 Sponsor WESTINGHOUSE HANFORD CO
 File ID KN10EK2605 Date of Analysis 07/27/91 Date Received 07/19/91
 DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	U	4000.*
74-83-9	bromomethane	U	3800.*
75-01-4	vinyl chloride	U	4300.*
75-00-3	chloroethane	U	3500.*
75-09-2	methylene chloride	U	4000.*
67-64-1	acetone	U	11000.*
75-15-0	carbon disulfide	U	4000.*
75-69-4	trichlorofluoromethane	U	3800.*
75-35-4	1,1-dichloroethene	U	3000.*
75-34-3	1,1-dichloroethane	U	5300.*
540-59-0	total 1,2-dichloroethene	U	3000.*
76-66-3	chloroform	U	4500.*
107-06-2	1,2-dichloroethane	U	6000.*
74-88-4	iodomethane	U	3800.*
107-02-8	acrolein	U	150000.*
107-13-1	acrylonitrile	U	110000.*
78-93-3	2-butanone	B	9500.*
71-55-6	1,1,1-trichloroethane	U	4000.*
56-23-5	carbon tetrachloride	U	3800.*
108-05-4	vinyl acetate	U	8800.*
75-27-4	bromodichloromethane	U	4500.*
78-87-5	1,2-dichloropropane	U	5000.*
10061-02-5	cis-1,3-dichloropropene	U	7800.*
79-01-6	trichloroethene	U	3300.*
71-43-2	benzene	1800.	4000.*
124-48-1	dibromochloromethane	U	3500.*
79-00-5	1,1,2-trichloroethane	U	2800.*
10061-02-6	trans-1,3-dichloropropene	U	7300.*
110-75-8	2-chloroethylvinyl ether	U	8300.*
75-25-2	bromoform	U	3000.*
74-95-3	dibromomethane	U	6300.*
764-41-0	trans-1,4-dichloro-2-butene	U	4300.*
108-10-1	4-methyl-2-pentanone	U	8800.*
96-18-4	1,2,3-trichloropropane	U	5800.*
591-78-6	2-hexanone	U	10000.*
79-34-5	1,1,2,2-tetrachloroethane	U	5000.*
127-18-4	tetrachloroethene	U	3800.*
97-63-2	ethyl methacrylate	U	4800.*
108-88-3	toluene	43000.	3800.*
108-90-7	chlorobenzene	U	3300.*
100-41-4	ethylbenzene	11000.	3500.*
100-42-5	styrene	U	3000.*
1330-20-7	total xylene	540000.	2500.*

D-237

* current DataChem detection limit

Field Sample ID B00ZP2

Scan Results

[illegible]

FOOTNOTES

- B The analyte was found in the method blank. The reported results have been adjusted for the quantity found in the blank.
- E The reported concentration is an estimate only. The response factor was assumed to be 1.000 relative to an internal standard.
- J Indicates an estimated concentration below the Method Detection Limit.
- K The isomer is unknown.
- N Analytical standards were not analyzed for this compound.
- U Not detected.
- W The identification is tentative or closely related to the compound.

ANALYTICAL REPORT FOR SAMPLE No. EK2606

Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B00ZP3 Sponsor WESTINGHOUSE HANFORD CO
File ID KN13EK2606 Date of Analysis 07/27/91 Date Received 07/19/91
DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	U	4000.*
74-83-9	bromomethane	U	3800.*
75-01-4	vinyl chloride	U	4300.*
75-00-3	chloroethane	U	3500.*
75-09-2	methylene chloride	U	4000.*
67-64-1	acetone	U	11000.*
75-15-0	carbon disulfide	U	4000.*
75-69-4	trichlorofluoromethane	U	3800.*
75-35-4	1,1-dichloroethene	U	3000.*
75-34-3	1,1-dichloroethane	U	5300.*
540-59-0	total 1,2-dichloroethene	U	3000.*
76-66-3	chloroform	U	4500.*
107-06-2	1,2-dichloroethane	U	6000.*
74-88-4	iodomethane	U	3800.*
107-02-8	acrolein	U	150000.*
107-13-1	acrylonitrile	U	110000.*
78-93-3	2-butanone	81000.	9500.*
71-55-6	1,1,1-trichloroethane	U	4000.*
56-23-5	carbon tetrachloride	U	3800.*
108-05-4	vinyl acetate	U	8800.*
75-27-4	bromodichloromethane	U	4500.*
78-87-5	1,2-dichloropropane	U	5000.*
10061-02-5	cis-1,3-dichloropropene	U	7800.*
79-01-6	trichloroethene	U	3300.*
71-43-2	benzene	4500.	4000.*
124-48-1	dibromochloromethane	U	3500.*
79-00-5	1,1,2-trichloroethane	U	2800.*
10061-02-6	trans-1,3-dichloropropene	U	7300.*
110-75-8	2-chloroethylvinyl ether	U	8300.*
75-25-2	bromoform	U	3000.*
74-95-3	dibromomethane	U	6300.*
764-41-0	trans-1,4-dichloro-2-butene	U	4300.*
108-10-1	4-methyl-2-pentanone	U	8800.*
96-18-4	1,2,3-trichloropropane	U	5800.*
591-78-6	2-hexanone	U	10000.*
79-34-5	1,1,2,2-tetrachloroethane	U	5000.*
127-18-4	tetrachloroethene	U	3800.*
97-63-2	ethyl methacrylate	U	4800.*
108-88-3	toluene	100000.	3800.*
108-90-7	chlorobenzene	U	3300.*
100-41-4	ethylbenzene	32000.	3500.*
100-42-5	styrene	U	3000.*
1330-20-7	total xylene	1800000.	2500.*

D-239

* current DataChem detection limit

Field Sample ID B002P3

FOOTNOTES

- D-240**

WHC-SD-EN-TI-136, Rev. 0
ANALYTICAL REPORT FOR SAMPLE No. EK2607
Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B00ZP4 Sponsor WESTINGHOUSE HANFORD CO
 File ID KN15EK2607 Date of Analysis 07/27/91 Date Received 07/19/91
 DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	U	4000.*
74-83-9	bromomethane	U	3800.*
75-01-4	vinyl chloride	U	4300.*
75-00-3	chloroethane	U	3500.*
75-09-2	methylene chloride	U	4000.*
67-64-1	acetone	U	11000.*
75-15-0	carbon disulfide	U	4000.*
75-69-4	trichlorofluoromethane	U	3800.*
75-35-4	1,1-dichloroethene	U	3000.*
75-34-3	1,1-dichloroethane	U	5300.*
540-59-0	total 1,2-dichloroethene	U	3000.*
76-66-3	chloroform	U	4500.*
107-06-2	1,2-dichloroethane	U	6000.*
74-88-4	iodomethane	U	3800.*
107-02-8	acrolein	U	150000.*
107-13-1	acrylonitrile	U	110000.*
78-93-3	2-butanone	B	9500.*
71-55-6	1,1,1-trichloroethane	U	4000.*
56-23-5	carbon tetrachloride	U	3800.*
108-05-4	vinyl acetate	U	8800.*
75-27-4	bromodichloromethane	U	4500.*
78-87-5	1,2-dichloropropane	U	5000.*
10061-02-5	cis-1,3-dichloropropene	U	7800.*
79-01-6	trichloroethene	U	3300.*
71-43-2	benzene	2700.	4000.*
124-48-1	dibromochloromethane	U	3500.*
79-00-5	1,1,2-trichloroethane	U	2800.*
10061-02-6	trans-1,3-dichloropropene	U	7300.*
110-75-8	2-chloroethylvinyl ether	U	8300.*
75-25-2	bromoform	U	3000.*
74-95-3	dibromomethane	U	6300.*
764-41-0	trans-1,4-dichloro-2-butene	U	4300.*
108-10-1	4-methyl-2-pentanone	U	8800.*
96-18-4	1,2,3-trichloropropane	U	5800.*
591-78-6	2-hexanone	U	10000.*
79-34-5	1,1,2,2-tetrachloroethane	U	5000.*
127-18-4	tetrachloroethene	U	3800.*
97-63-2	ethyl methacrylate	U	4800.*
108-88-3	toluene	94000.	3800.*
108-90-7	chlorobenzene	U	3300.*
100-41-4	ethylbenzene	23000.	3500.*
100-42-5	styrene	U	3000.*
1330-20-7	total xylene	1600000.	2500.*

D-241

* current DataChem detection limit

NON-TARGET ANALYTE RESULTS

Additional Volatiles

Field Sample ID B00ZP4

[illegible]

FOOTNOTES

- B The analyte was found in the method blank. The reported results have been adjusted for the quantity found in the blank.
- E The reported concentration is an estimate only. The response factor was assumed to be 1.000 relative to an internal standard.
- J Indicates an estimated concentration below the Method Detection Limit.
- K The isomer is unknown.
- N Analytical standards were not analyzed for this compound.
- U Not detected.
- W The identification is tentative or closely related to the compound.

ANALYTICAL REPORT FOR SAMPLE No. EK2608Page 1 of 2

EPA METHOD 8240

TARGET ANALYTE RESULTS

Field Sample ID B00ZP5 Sponsor WESTINGHOUSE HANFORD CO
 File ID KM88EK2608 Date of Analysis 07/26/91 Date Received 07/19/91
 DataChem SET ID S91-0513DD

<u>Cas. No</u>	<u>COMPOUND</u>	<u>RESULTS</u> <u>(ug/KG)</u>	<u>DETECTION LIMITS</u> <u>(ug/KG)</u>
74-87-3	chloromethane	U	1.6*
74-83-9	bromomethane	U	1.5*
75-01-4	vinyl chloride	U	1.7*
75-00-3	chloroethane	U	1.4*
75-09-2	methylene chloride	U	1.6*
67-64-1	acetone	5.0	4.3*
75-15-0	carbon disulfide	U	1.6*
75-69-4	trichlorofluoromethane	U	1.5*
75-35-4	1,1-dichloroethene	U	1.2*
75-34-3	1,1-dichloroethane	U	2.1*
540-59-0	total 1,2-dichloroethene	U	1.2*
76-66-3	chloroform	U	1.8*
107-06-2	1,2-dichloroethane	U	2.4*
74-88-4	iodomethane	U	1.5*
107-02-8	acrolein	U	58.*
107-13-1	acrylonitrile	U	43.*
78-93-3	2-butanone	U	3.8*
71-55-6	1,1,1-trichloroethane	U	1.6*
56-23-5	carbon tetrachloride	U	1.5*
108-05-4	vinyl acetate	U	3.5*
75-27-4	bromodichloromethane	U	1.8*
78-87-5	1,2-dichloropropane	U	2.0*
10061-02-5	cis-1,3-dichloropropene	U	3.1*
79-01-6	trichloroethene	U	1.3*
71-43-2	benzene	U	1.6*
124-48-1	dibromochloromethane	U	1.4*
79-00-5	1,1,2-trichloroethane	U	1.1*
10061-02-6	trans-1,3-dichloropropene	U	2.9*
110-75-8	2-chloroethylvinyl ether	U	3.3*
75-25-2	bromoform	U	1.2*
74-95-3	dibromomethane	U	2.5*
764-41-0	trans-1,4-dichloro-2-butene	U	1.7*
108-10-1	4-methyl-2-pentanone	U	3.5*
96-18-4	1,2,3-trichloropropane	U	2.3*
591-78-6	2-hexanone	U	4.1*
79-34-5	1,1,2,2-tetrachloroethane	U	2.0*
127-18-4	tetrachloroethene	U	1.5*
97-63-2	ethyl methacrylate	U	1.9*
108-88-3	toluene	11.	1.5*
108-90-7	chlorobenzene	U	1.3*
100-41-4	ethylbenzene	U	1.4*
100-42-5	styrene	U	1.2*
1330-20-7	total xylene	U	1.0*

D-243

* current DataChem detection limit

NON-TARGET ANALYTE RESULTS

Additional Volatiles

Field Sample ID B00ZP5

[illegible]

B The analyte was found in the method blank. The reported results have been adjusted for the quantity found in the blank.

E The reported concentration is an estimate only. The response factor was assumed to be 1.000 relative to an internal standard.

J Indicates an estimated concentration below the Method Detection Limit.

K The isomer is unknown.

N Analytical standards were not analyzed for this compound.

U Not detected.

W The identification is tentative or closely related to the compound.

WHC-SD-EN-TI-136, Rev. 0

TANK 100-N-SS-28

Sample Date April 29, 1992

WHC-SD-EN-TI-136, Rev. 0

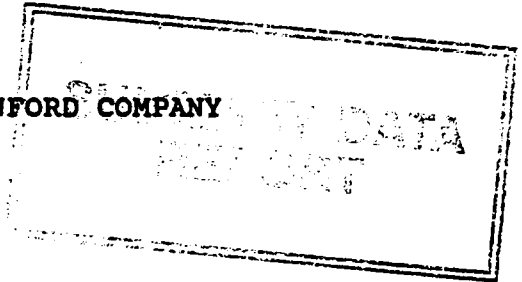
CASE NARRATIVE

LABORATORY: TMA/ARLI

CASE: 05-014

CONTRACT ID: WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE: MAY 4, 1992



1.0 DESCRIPTION OF CASE:

Three soil samples were analyzed for Total Petroleum Hydrocarbons and Purgeable Aromatics. Preliminary results were provided by FAX within 10 days of VTSR. This package represents the final results.

2.0 SAMPLE LIST:

<u>WESTINGHOUSE ID</u>	<u>LAB ID</u>	<u>MATRIX</u>	<u>METHOD</u>
B06D35	A2-05-014-01	SOIL	HC, THE
B06D36	A2-05-014-02	SOIL	HC, THE, THP, BX
B06D37	A2-05-014-03	SOIL	HC, THE, THP, BX

Method Codes: HC = EPA 418.1, THE = EPA 8015 EXTRACTABLE,
THP = EPA 8015M PURGEABLE, BX = EPA 8020 BTEX

3.0 COMMENTS ON SAMPLE RECEIPT:

The samples were received intact and properly documented.

4.0 COMMENTS ON ANALYSIS:

4.1 EPA 418.1 - TOTAL PETROLEUM BY IR:

All samples were extracted and analyzed within method holding time.

All QC results were acceptable.

4.2 EPA 8015M - EXTRACTABLE HYDROCARBON:

All samples were extracted and analyzed within method holding time.

All QC results were acceptable.

Samples B06D36 and B06D37 contained a hydrocarbon mixture that has the chromatographic pattern of a combination of kerosene and diesel products. Each section of the chromatogram was quantitated against the appropriate standard separately.

Because of overlapping of late eluting gasoline compounds the MS and MSD were calculated by taking the sum of the area counts of five individual compounds and comparing this area to the sum of the area counts of the same peaks from the continuing calibration.

4.3 EPA 8015M - PURGEABLE HYDROCARBONS:

All samples were analyzed within method holding time. All QC results were acceptable.

Due to the high concentration of Kerosene range hydrocarbons in the samples, one gram was extracted with 10 mL of Methanol and 50 uL of Methanol purged. This resulted in a dilution factor of 1000:1. No gasoline range compounds were found in the samples. A Methanol Blank has been included in the package.

4.4 EPA 8020 - BTEX:

All samples were analyzed within method holding time.

All QC results were acceptable.

Due to the high concentration of background hydrocarbons the samples were extracted with Methanol (1:10) and 50 uL of Methanol purged. This resulted in a dilution factor of 1000:1. Results of a Methanol Blank have been included in the package.

All Toluene hits were confirmed by GCMS.

5.0 DATA PACKAGE COMMENTS:

The Format of the data deliverable was designed to meet or exceed the requirements of the Westinghouse Hanford Company Statement of Work. The intent of the package design is to provide sufficient data for "stand alone" validation. While the format of the package is "CLP like" Thermo Analytical Inc. makes no claim that this package duplicates in part or in total an EPA CLP data package.

" I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Nicole Roth
CLP Manager

Dennis D. Wells
Technical Director

TNA Inc.

REPORT

Work Order # A2-05-014

Received: 05/04/92

Results by Sample

SAMPLE ID <u>006036</u>	SAMPLE # <u>02</u> FRACTIONS: <u>F</u>
	Date & Time Collected <u>04/29/92</u> Category _____
418_1S <u>1.200</u> mg/Kg	
SAMPLE ID <u>006036 Duplicate</u>	SAMPLE # <u>02</u> FRACTIONS: <u>G</u>
	Date & Time Collected <u>04/29/92</u> Category _____
418_1S <u>1.330</u> mg/Kg	
SAMPLE ID <u>Blank Spike</u>	SAMPLE # <u>02</u> FRACTIONS: <u>H</u>
	Date & Time Collected <u>04/29/92</u> Category _____
418_1S <u>2.15</u> mg/Kg	
SAMPLE ID <u>006037</u>	SAMPLE # <u>03</u> FRACTIONS: <u>E, F</u>
	Date & Time Collected <u>04/29/92</u> Category _____
418_1S <u>1.160</u> mg/Kg	

SUMMARY DATA
REPORT

TMA Inc.

REPORT

Work Order # A2-05-014

Received: 05/04/92

Results by Sample

SAMPLE ID R06035FRACTION Q1A TEST CODE 8015MS NAME EPA 8015M EXTRACT. (WH195)Date & Time Collected 04/29/92

Category _____

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 05/11/92Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5
C10 - C16 Jet Fuel Range	ND	5
C9 - C22 Diesel Range	ND	10
Hydraulic Range	ND	5

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-05-014

Received: 05/04/92

Results by Sample

SAMPLE ID B06D36FRACTION 02CTEST CODE BTEXNAME BTEX by EPA 8020 (VH196)Date & Time Collected 04/29/92Category

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 5/8/92Dilution factor: 1000Concentration Units: ug/Kg

CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	500
108-88-3	Toluene	4,200	500
100-41-4	Ethylbenzene	ND	500
1330-20-7	Xylenes (Total)	ND	500

% Recovery Surrogate Compound

Bromofluorobenzene 101

ND = Not detected at the specified limits

Form 1

TMA Inc.

REPORT

Work Order # A2-05-014

Received: 05/04/92

Results by Sample

SAMPLE ID R06D36FRACTION 02BTEST CODE 8015HNAME Volatile Fuels-TPHDate & Time Collected 04/29/92Category

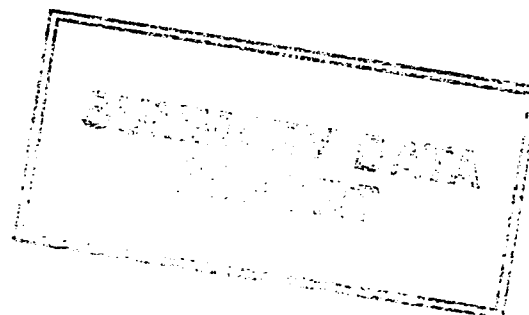
MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 05/11/92Dilution factor: 1000.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	5000

ND = Not detected at the specified limits

Form 1



TNA Inc.

REPORT

Work Order # A2-05-014

Received: 05/04/92

Results by Sample

SAMPLE ID 006036FRACTION 02ATEST CODE 8015MSNAME EPA 8015H EXTRACT. (VH195)Date & Time Collected 04/29/92

Category _____

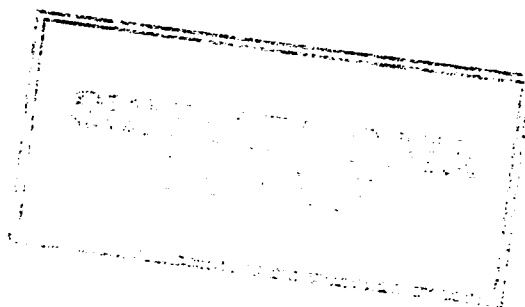
MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 05/12/92Dilution factor: 2.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	2975	10
C10 - C16 Jet Fuel Range	ND	10
C9 - C22 Diesel Range	435	20
Hydraulic Range	ND	10

ND = Not detected at the specified limits

Form 1



TNA Inc.

REPORT

Work Order # A2-05-014

Received: 05/04/92

Results by Sample

SAMPLE ID R06037FRACTION 03ETEST CODE BTEXNAME BTEX by EPA 8020 (VH196)Date & Time Collected 04/29/92

Category _____

BTEX by EPA Method 8020

Matrix: SoilDate Analyzed: 5/8/92Dilution factor: 1000Concentration Units: ug/Kg

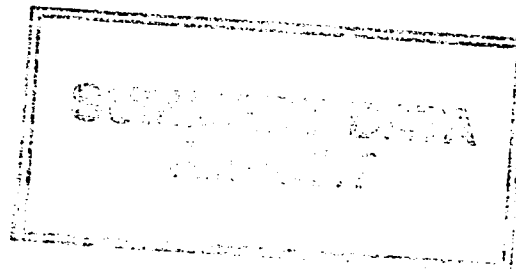
CAS No.	Compound	Sample Result	PQL
71-43-2	Benzene	ND	500
108-88-3	Toluene	4,700	500
100-41-4	Ethylbenzene	ND	500
1330-20-7	Xylenes (Total)	ND	500

X Recovery Surrogate Compound

Bromofluorobenzene 104

ND = Not detected at the specified limits

Form 1



Received: 05/04/92

TMA Inc.

REPORT

Work Order # A2-05-014

Results by Sample

SAMPLE ID B06037FRACTION 038TEST CODE 8015NNAME Volatile Fuels-TPHDate & Time Collected 04/29/92

Category _____

MODIFIED 8015 - VOLATILE FUEL HYDROCARBONS

Matrix: SoilDate Analyzed: 05/11/92Dilution factor: 1000.00Concentration Units: ug/Kg

Compound	Sample Result	PQL
C5 - C12 Gasoline Range	ND	5000

ND = Not detected at the specified limits

Form I

TMA Inc.

REPORT

Work Order # A2-05-014

Received: 05/04/92

Results by Sample

SAMPLE ID R06D37

FRACTION Q3A TEST CODE 8015MS NAME EPA 8015M EXTRACT, (VH195)
Date & Time Collected 04/29/92 Category _____

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: Soil

Date Analyzed: 05/12/92

Dilution factor: 2.00

Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	3085	10
C10 - C16 Jet Fuel Range	ND	10
C9 - C22 Diesel Range	1000	20
Hydraulic Range	ND	10

ND = Not detected at the specified limits

Form I

WHC-SD-EN-TI-136, Rev 0

WHC-SD-EN-TI-136, Rev. 0

100-N GAS STATION "LUST"

September 9, 1992

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Westinghouse Hanford

Date: September 22, 1992

Report On: Analysis of Soils & Solids Lab No.: 27160

Page 1 of 7

IDENTIFICATION:

Samples received on 09-16-92

Project: 100 N Gas Station "LUST"

ANALYSIS:

Lab No. 27160-1

Client ID: B076C4 (soil)

WTPH-G with BTEX by Method 8020

Date Extracted: 9-17-92

Date Analyzed: 9-18-92

Gasoline, mg/kg < 1.0
(C7-C12)

Benzene, mg/kg < 0.05
Toluene, mg/kg < 0.05
Ethyl Benzene, mg/kg < 0.05
Xylenes, mg/kg < 0.05

SURROGATE RECOVERY, %

Trifluorotoluene 85

WTPH-D

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Diesel, mg/kg < 25
(> C12-C24)

SURROGATE RECOVERY, %

O-Terphenyl 75

WTPH-418.1 Modified

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Heavy petroleum oils, mg/kg < 100
(C24+)

ICP Metals Per Method 6010

Date Digested: 9-18-92

Date Analyzed: 9-18-92

Lead, mg/kg 1.9

D-261

Continued

SOUND ANALYTICAL SERVICES, INC.

Westinghouse Hanford
Project: 100 N Gas Station "LUST"
Page 2 of 7
Lab No. 27160
September 22, 1992

Lab No. 27160-2

Client ID: B076C5 (soil)

WTPH-G with BTEX by Method 8020

Date Extracted: 9-17-92

Date Analyzed: 9-18-92

Gasoline, mg/kg < 1.0
(C7-C12)

Benzene, mg/kg < 0.05
Toluene, mg/kg < 0.05
Ethyl Benzene, mg/kg < 0.05
Xylenes, mg/kg < 0.05

SURROGATE RECOVERY, %

Trifluorotoluene 87

WTPH-D

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Diesel, mg/kg < 25
(> C12-C24)

SURROGATE RECOVERY, %

O-Terphenyl 61

WTPH-418.1 Modified

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Heavy petroleum oils, mg/kg < 100
(C24+)

ICP Metals Per Method 6010

Date Digested: 9-18-92

Date Analyzed: 9-18-92

Lead, mg/kg 1.3

Continued

SOUND ANALYTICAL SERVICES, INC.

Westinghouse Hanford
Project: 100 N Gas Station "LUST"
Page 4 of 7
Lab No. 27160
September 22, 1992

Lab No. 27160-4

Client ID: B076C6 (soil)

WTPH-G with BTEX by Method 8020

Date Extracted: 9-17-92

Date Analyzed: 9-18-92

Gasoline, mg/kg < 1.0
(C7-C12)

Benzene, mg/kg < 0.05
Toluene, mg/kg < 0.05
Ethyl Benzene, mg/kg < 0.05
Xylenes, mg/kg < 0.05

SURROGATE RECOVERY, %

Trifluorotoluene 72

WTPH-D

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Diesel, mg/kg < 25
(C12-C24)

SURROGATE RECOVERY, %

O-Terphenyl 60

WTPH-418.1 Modified

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Heavy petroleum oils, mg/kg < 100
(C24+)

ICP Metals Per Method 6010

Date Digested: 9-18-92

Date Analyzed: 9-18-92

Lead, mg/kg 2.6

Continued

SOUND ANALYTICAL SERVICES, INC.

Westinghouse Hanford
Project: 100 N Gas Station "LUST"
Page 3 of 7
Lab No. 27160
September 22, 1992

Lab No. 27160-3

Client ID: B076C7 (solid)

WTPH-G with BTEX by Method 8020

Date Extracted: 9-17-92

Date Analyzed: 9-18-92

Gasoline, mg/kg < 1.0
(C7-C12)

Benzene, mg/kg < 0.05
Toluene, mg/kg < 0.05
Ethyl Benzene, mg/kg < 0.05
Xylenes, mg/kg < 0.05

SURROGATE RECOVERY, %

Trifluorotoluene 68

WTPH-D

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Diesel, mg/kg < 25
(> C12-C24)

SURROGATE RECOVERY, %

O-Terphenyl 66

WTPH-418.1 Modified

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Heavy petroleum oils, mg/kg < 100
(C24+)

ICP Metals Per Method 6010

Date Digested: 9-18-92

Date Analyzed: 9-18-92

Lead, mg/kg < 1.1

Continued

SOUND ANALYTICAL SERVICES, INC.

Westinghouse Hanford
Project: 100 N Gas Station "LUST"
Page 5 of 7
Lab No. 27160
September 22, 1992

Lab No. 27160-5

Client ID: B076C8 (solid)

WTPH-G with BTEX by Method 8020

Date Extracted: 9-17-92

Date Analyzed: 9-19-92

Gasoline, mg/kg < 1.0
(C7-C12)

Benzene, mg/kg < 0.05
Toluene, mg/kg < 0.05
Ethyl Benzene, mg/kg < 0.05
Xylenes, mg/kg < 0.05

SURROGATE RECOVERY, %

Trifluorotoluene 65

WTPH-D

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Diesel, mg/kg < 25
(C12-C24)

SURROGATE RECOVERY, %

O-Terphenyl 66

WTPH-418.1 Modified

Date Extracted: 9-18-92

Date Analyzed: 9-21-92

Heavy petroleum oils, mg/kg < 100
(C24+)

ICP Metals Per Method 6010

Date Digested: 9-18-92

Date Analyzed: 9-18-92

Lead, mg/kg < 1.0

Continued

SOUND ANALYTICAL SERVICES, INC.

Westinghouse Hanford
Project: 100 N Gas Station "LUST"
Page 6 of 7
Lab No. 27160
September 22, 1992

Lab No. 27160-6

Client ID: B076C9 (solid)

WTPH-G with BTEX by Method 8020
Date Extracted: 9-17-92
Date Analyzed: 9-19-92

Gasoline, mg/kg < 1.0
(C7-C12)

Benzene, mg/kg < 0.05
Toluene, mg/kg < 0.05
Ethyl Benzene, mg/kg < 0.05
Xylenes, mg/kg < 0.05

SURROGATE RECOVERY, %

Trifluorotoluene 73

WTPH-D
Date Extracted: 9-18-92
Date Analyzed: 9-21-92

Diesel, mg/kg < 25
(> C12-C24)

SURROGATE RECOVERY, %

O-Terphenyl 71

WTPH-418.1 Modified
Date Extracted: 9-18-92
Date Analyzed: 9-21-92

Heavy petroleum oils, mg/kg < 100
(C24+)

ICP Metals Per Method 6010
Date Digested: 9-18-92
Date Analyzed: 9-18-92

Lead, mg/kg < 0.69

Continued

SOUND ANALYTICAL SERVICES, INC.

Westinghouse Hanford
Project: 100 N Gas Station "LUST"
Page 7 of 7
Lab No. 27160
September 22, 1992

Lab No. 27160-7

Client ID: B076D0 (soil)

WTPH-G with BTEX by Method 8020
Date Extracted: 9-17-92
Date Analyzed: 9-19-92

Gasoline, mg/kg < 1.0
(C7-C12)

Benzene, mg/kg < 0.05
Toluene, mg/kg < 0.05
Ethyl Benzene, mg/kg < 0.05
Xylenes, mg/kg < 0.05

SURROGATE RECOVERY, %

Trifluorotoluene 70

WTPH-D
Date Extracted: 9-18-92
Date Analyzed: 9-21-92

Diesel, mg/kg < 25
(> C12-C24)

SURROGATE RECOVERY, %

O-Terphenyl 59

WTPH-418.1 Modified
Date Extracted: 9-18-92
Date Analyzed: 9-21-92

Heavy petroleum oils, mg/kg < 100
(C24+)

ICP Metals Per Method 6010
Date Digested: 9-18-92
Date Analyzed: 9-18-92

Lead, mg/kg 2.7

SOUND ANALYTICAL SERVICES


MARTY FRENCH